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NOTES
FROM THE
LEYDEN MUSEUM.

NOTES

FROM THE

LEYDEN MUSEUM

FOUNDED BY THE LATE

Prof. H. SCHLEGEL,

CONTINUED BY

Dr. F. A. JENTINK,

Director of the Museum.

VOL. XIII.

LEYDEN

E. J. BRILL.

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¹⁾ On p. 167, line 12 (from bottom), there is erroneously printed *O. scalaris* Roel. in stead of *O. suturale* Roel. (see p. 170).

²⁾ Erratum: p. 239, line 4 (from bottom), for "marqués de taches" read "marqué de taches."

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NOTE I.

CARCINOLOGICAL STUDIES IN THE LEYDEN MUSEUM.

BY

Dr. J. G. de MAN.

N^o. 5. ¹⁾
(Plate 1—4).

LIST OF SPECIES.

<i>Actaea rugata</i> Ad. & White.	<i>Gelasimus annulipes</i> Latr.
<i>Actaeodes pubescens</i> M. E.	» <i>Gaimardi</i> M. E.
<i>Etisus anaglyptus</i> M. E.	» <i>chlorophthalmus</i> Latr.
<i>Etisodes frontalis</i> Dana.	» <i>inversus</i> Hoffm.
<i>Epixanthus corrosus</i> A. M. E.	» <i>triangularis</i> A. M. E.
» <i>subcorrosus</i> , n. sp.	<i>var. variabilis</i> de Man.
<i>Cardisoma quadratum</i> de Sauss.	<i>Metopograpsus messor</i> Forskål,
<i>Gelasimus vocans</i> M. E.	<i>var. gracilipes</i> de Man.
» <i>tetragonon</i> Herbst.	<i>Grapsus maculatus</i> Catesby.
» <i>Dussumieri</i> M. E.	<i>Sesarma Büttikoferi</i> de Man.
» <i>arcuatus</i> de Haan.	» <i>Germani</i> A. M. E.
» <i>coarctatus</i> M. E.	» <i>oceanica</i> de Man.
» <i>forcipatus</i> Ad. & White?	<i>Heterograpsus crenulatus</i> Guérin.
» <i>Urvillei</i> M. E.	» <i>spinosus</i> M. E.
» <i>signatus</i> Hess.	<i>Calcinus intermedius</i> de Man.
» » » , <i>var. angustifrons</i> de Man.	<i>Pseudosquilla oculata</i> Brullé.

1. *Actaea rugata* Ad. & White.

Aegle rugata, Adams and White, Zool. of the voyage of H. M. S. Samarang, Crust., 1848, p. 43, Pl. VIII, fig. 5.

1) See for N^o. 1 and 2: Vol. III, p. 121 and p. 245; for N^o. 3: Vol. V, p. 150, and for N^o. 4: Vol. XII, p. 49.

Actaea rugata, A. Milne Edwards, in: Nouv. Archives du Muséum, T. 1, p. 269.

Actaea rufopunctata, de Man, in: Journal Linnean Society of London, Vol. XXII, 1887, p. 26, and in: Archiv für Naturgeschichte, Bd. 53, 1888, p. 261.

One female specimen without eggs, from Samoa, purchased from the Museum Godeffroy.

This species is closely allied to *Actaea rufopunctata* M. E., so that one easily may confound them. I now studied in Paris adult type-specimens of the two species, and I observed the following differences.

The cephalothorax of *A. rufopunctata* is a little more enlarged and the distance between the external orbital angles (and therefore also the breadth of the front) is comparatively somewhat smaller in this species than in *A. rugata*. The upper surface of the cephalothorax of *A. rufopunctata* is covered with a very short close down, similar to that of *Actaeodes tomentosus* M. E.; the interregional grooves, as well as the lobules themselves, are clothed with it, excepted the granules with which the lobules are covered. In *A. rugata*, however, the lobules of the upper surface of the cephalothorax and the legs are clothed, besides with a close down, with tolerably long stiff yellowish brown hairs, which are inserted between the granules.

As regards the form of the front, the two species agree with one another. In both species the regions 2 M are by longitudinal grooves divided into four protogastric lobules; in *A. rufopunctata* these lobules are nearly of the same size, but in *A. rugata* the external protogastric lobules are about twice as broad as the internal ones. The cardiac region of *A. rufopunctata* shows anteriorly a trace of a median longitudinal furrow, whereas in *A. rugata* this lobule appears always quite undivided.

The legs, finally, present a different appearance in both species. The carpopodites and propodites of *A. rufopunctata* are, namely, very nodose and these tubercles are especially characteristic to the ambulatory legs. In *A. rugata*

the legs are also grooved above, but they do not present the characteristic prominent tubercles of the other species.

The cephalothorax and the legs of *A. rugata* are also marked with some symmetrically arranged spots of a reddish or violet colour, the largest of which covers the whole mesogastric and the two internal protogastric lobules.

The specimens from the Mergui Archipelago and those from the Bay of Batavia, which I have referred (l. c.) to *A. rufopunctata*, now appear to be true representatives of *A. rugata*.

In a very young female specimen from the Fiji Islands, which Prof. Milne Edwards likewise refers to *A. rufopunctata*, the front projects a little less forward, the median emargination is not so deep, and on each side of it the front appears only slightly emarginate towards the external angles.

Actaea Rüppellii Krauss, from Natal, is probably identical with *A. rugata*, but the cephalothorax of the species of Krauss appears to be still somewhat narrower and less enlarged. Dr. Hilgendorf, however, unites the two species.

Actaea rugata Ad. & White has been recorded from Zanzibar, Mozambique, Mauritius, the Mergui Archipelago, the Bay of Batavia, Macassar, the Philippines and New Caledonia.

The dimensions of a type-specimen of *Actaea rufopunctata* M. E. from the Paris Museum, obtained in the Red Sea, are the following:

	♂	
Breadth of the cephalothorax	39	mm.
Length (the front included).	$26\frac{1}{4}$	»
Distance between the external orbital angles (measured at the tips of the corneae) . .	$17\frac{1}{2}$	»
Distance between the internal orbital angles .	$11\frac{1}{2}$	»

The dimensions of three specimens of *Actaea rugata* Ad. & White are the following:

	1.	2.	3.	
	♂	♂	♀	
Breadth of the cephalothorax . .	32	$26\frac{1}{3}$	$25\frac{1}{2}$	mm.
Length » » » . .	23	$19\frac{1}{4}$	18	»

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	1.	2.	3.
Distance between the external orbital angles	♂ 16 ¹ / ₂	♂ 13 ¹ / ₂	♀ 13 ¹ / ₄ mm.
Distance between the internal orbital angles	10	8	»
N ^o . 1. Specimen collected in New Caledonia, from the Paris Museum.			
N ^o . 2. Specimen from the Bay of Batavia.			
N ^o . 3. Specimen from Samoa.			

2. *Actaeodes pubescens* M. E.

(Pl. 1, fig. 1).

Zoerymus pubescens, H. Milne Edwards, Hist. Nat. des Crustacés, T. I, p. 384. (1834).

Lionera pubescens, A. Milne Edwards, in: Nouv. Archives du Muséum, T. I, p. 223, Pl. XII, fig. 6, 6a.

A male and a female from the Fiji Islands.

The nearest ally of this rare species is *Actaeodes Richtersi* de Man, from Tahiti. As regards the general form and structure of the cephalothorax, these two species closely resemble one another. The regions of the upper surface, which is somewhat convex in the anteroposterior direction and slightly also transversely, are as little defined as those of *Act. Richtersi*, at least in these two specimens, one of which has been kindly determined for me by Milne Edwards. The sutures defining the gastric region are absent, so that the quoted figure in the »Nouvelles Archives'', in which they have been figured, is perhaps not exact. I observe only the median frontal furrow, which is divided itself as usual in two furrows, but these two furrows are short and do not reach to the lateral borders of the gastric region. The grooves defining the gastric and cardiac regions are indeed quite absent in these specimens, and only two small impressed points, placed in a transverse line near one another,

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separate the two regions from one another. In the male specimen a shallow transverse impression separates still the cardiac from the intestinal region, but in the larger female even this impression is almost indistinguishable. The two furrows which border the third lobe of the antero-lateral margins, are as short as in *A. Richtersii*, and the furrow which extends along the upper margin of the orbits and the two anterior antero-lateral lobes, quite resembles that which exists in *A. Richtersii*.

The somewhat prominent front is about as narrow as in the other species, and divided by a narrow incision in two rounded lobes; these lobes are directed obliquely backward and are more distinctly emarginate towards their external angles, which are dentiform and scarcely separated from the internal angles of the orbits. The eye-peduncles and the orbits resemble those of the other species.

The antero-lateral margins are a little longer than the postero-lateral ones, but they are equal in length in the other species. They are rather indistinctly divided into four lobes, the first of which is only a little longer than the second: the first antero-lateral lobe of *A. Richtersii*, however, is nearly as long as the three other lobes taken together. The third lobe is separated by more distinct notches from the second and the fourth, than the first lobe from the second. The third lobe measures two thirds of the length of the second, and is slightly rounded and prominent. It ought to be observed that in the younger male specimen the antero-lateral margins appear to me to be comparatively a little longer than those of the adult female, and that the third lobe of the former projects a little more outward laterally than the fourth, whereas in the female the fourth lobe projects more outward than the third. As regards the granulation of the cephalothorax, both species almost agree with one another, and the upper surface is covered with very short hairs which are also inserted at the base of the granules.

The under surface of the cephalothorax is everywhere

granulated, the granules being larger towards the lateral margins. The external maxillipedes are uniformly granulated and this is also the case with the sternum. The male abdomen is five-jointed and nearly smooth, except the two basal joints; the penultimate joint is nearly quadrate and scarcely shorter than the breadth of its posterior margin.

The seven-jointed abdomen of the female is also somewhat granulated on the two first joints and on the lateral sides of the two following.

The anterior legs are especially characteristic. They are equal, both in the male and in the female. The arms are everywhere granulated, and the granules are a little larger on the upper and on the infero-external margins. The wrist is everywhere granulated, and armed with a single tooth at the internal angle. The hands are almost three times as long as high, like in *A. Richtersii*, but the fingers are comparatively shorter. They measure, indeed, little more than a third of the length of the palm, and the palm is twice as long as high. The upper margin and almost the whole outer and inner surfaces of the palm are covered with conical granules, which are arranged, at least in the middle of the outer surface, more or less distinctly in longitudinal series. The granules disappear gradually towards the distal end of the outer surface and of the lower margin, somewhat more in the younger male than in the female specimen. A few granules are seen along the distal margin of the outer surface. The granulation evidently extends on a somewhat greater part of the outer surface of the palm than in *A. Richtersii*, and in this species the granules show nowhere a disposition to an arrangement in longitudinal series. The short fingers are feebly dentate, but distinctly excavated at their ends; the upper margin of the dactylus presents two deep longitudinal furrows, and the outer and inner sides of the fingers are also furrowed. The hands have the same form and proportions in the male and in the female, though it ought to be obser-

ved that the male is much younger than the female.

The ambulatory legs are similar to those of *A. Richtersii*, but they are more distinctly and more uniformly granulated, and clothed only with short and scanty hairs, whereas the ambulatory legs of *A. Richtersii* are provided with long, yellowish and silky hairs.

The upper surface of the cephalothorax and the upper sides of the legs present a fine rose-colour, the under surface is paler. Quite as in the species from Tahiti, the upper surface of the cephalothorax is ornamented with small round white spots, some of which occur also on the under sides of the carapace. The fingers are of a dark lead-colour with paler tips, and this lead-colour extends in the male on the distal part of the outer and inner surfaces of the palm, but not in the female.

Actaeodes pubescens appears to be widely distributed, the original specimen of the Paris Museum having been collected at Mauritius.

Measurements:	♂	♀
Greatest width of the cephalothorax	$23\frac{2}{3}$ mm.	$29\frac{1}{2}$ mm.
Length » » »	$12\frac{2}{3}$ »	16 »
Distance between the external orbital angles	9 »	$11\frac{1}{3}$ »
Length of the hands	12 »	$14\frac{2}{5}$ »
Height » » »	$4\frac{1}{4}$ »	5 »
Length » » fingers	$3\frac{2}{5}$ »	$4\frac{1}{2}$ »

3. *Etisus anaglyptus* M. E.

Etisus anaglyptus, H. Milne Edwards, Hist. Nat. des Crust. T. I, p. 411. (1834).

Etisus anaglyptus, Miers, Report on the Zool. Coll. made in the Indian Ocean during the voyage of H. M. S. Alert, 1884, p. 218.

The Leyden Museum contains two males from Ti or, and a male and a female from Samoa.

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Prof. Milne Edwards enabled me to compare these specimens with the original individual, which has been figured by the late Milne Edwards in the large illustrated edition of Cuvier. As Miers already supposed, the frontal lobes are not merely truncated, but slightly emarginated, and they are separated by a triangular notch, which is more distinct than in the figure of Cuvier. The upper surface of the cephalothorax of the male from Samoa is marked with five yellowish red spots, viz. one on the gastric, one on each hepatic region, and one on the anterior part of the areolae 5 L. The upper surface of the cephalothorax of the female specimen appears slightly more rugose, and the tubercles, with which the anterior legs are provided, are a little more distinct and prominent than in the male. The black colour of the fingers does not extend over the palm, but in the male it extends over a distal part of the inner and outer surface of it.

The cephalothorax of the larger male from Timor presents the following dimensions:

	♂
Greatest width (distance between the penultimate antero-lateral teeth).	43 $\frac{1}{2}$ mm.
Length of the cephalothorax ¹⁾	29 »
Distance between the tips of the internal orbital angles	11 $\frac{1}{2}$ »

This species has also been recorded from the Philippines and from the North-eastern coasts of Australia.

4. *Etisodes frontalis* Dana.

(Pl. 1, fig. 2).

Etisodes frontalis, Dana, Proc. Acad. Nat. Sciences of Philadelphia, 1852, p. 77, and United States Expl. Exp. Crust. 1852, T. I, p. 187, Pl. IX, fig. 3.

1) The length of the cephalothorax is measured exactly in the dorsal median line, from the base of the median frontal incision to the posterior margin.

Etisodes frontalis, A. Milne Edwards, in : Nouv. Archives du Muséum, T. IX, p. 235.

Two fine male specimens from Upolu, one of which is adult. The latter was sent by me to Prof. Milne Edwards, who informed me that this species was referred in the Collection of the Museum to *Etisodes frontalis* Dana, and that the specimens of the Museum were also collected at Upolu. I believe he is right, though I must observe that the cephalothorax of Dana's specimen appears comparatively less enlarged and narrower than those of our individuals; but the original specimen, described by Dana, was very young, the cephalothorax measuring only eight millim. in breadth, and the difference may, therefore, perhaps be ascribed to this fact.

This species is certainly different from *Etisodes Electra* Herbst = *sculptilis* Heller, and Miers (Report Crustacea Voyage of H. M. S. Alert, p. 217) was wrong in uniting these two species.

The cephalothorax is exactly once and a half as broad as long. The upper surface is slightly convex anteriorly, and more depressed posteriorly; it is rather strongly lobulate, and the interregional grooves are rather deep, though narrow. The median frontal furrow is, as usual, divided in two furrows which border the mesogastric area 3 M, issuing into the gastrobranchial i. e. cervical suture. The epigastric lobes are prominent, and distinctly separated from the less prominent postfrontal lobules 2 F; they are also separated from the upper walls of the orbits by longitudinal grooves, which run parallel with the median frontal furrow, and which begin at the hiatus between the internal orbital and external frontal angles. The protogastric regions 2 M are subdivided only anteriorly by the described longitudinal grooves which border the epigastric lobules laterally, and are for the rest undivided. The urogastric lobe 4 M is distinctly defined. This is not the case with the cardiac region, which is coalescent laterally with the postero-lateral

regions 3 R; but it is separated from the intestinal region by a transverse groove, which runs parallel with the posterior margin of the cephalothorax and which is interrupted in the middle. The hepatic region is divided into three prominent lobules 1 L, 2 L and 3 L, and the three areolae 4 L, 5 L, 6 L are also distinctly separated from one another and, at least the first, prominent. The postero-lateral regions 1 R, 2 R and 3 R are equally distinct, and the two latter are separated from one another by a rather deep oblique groove. The lobulation of the cephalothorax evidently much resembles that of *Etisodes Electra*. The lobules are irregularly punctate, and the anterior ones appear slightly granulated on their most prominent portions, only visible, however, under a lens of sufficient power. The distance between the external orbital angles is slightly more than half as broad as the greatest width of the cephalothorax. The front does not project so much forward as in *Etis. Electra* and is, somewhat obliquely, directed downwards. It presents two arcuate and granulated internal lobes, which are separated from one another by a small triangular incision; these lobes are separated by a slight emargination from the less prominent external lobes, which are much smaller, obtuse and dentiform. The frontal lobes are ornamented on their upper surface with a transverse row of obtuse granules, which runs close to the anterior margin of the front, and which is interrupted in the middle by the median frontal furrow. The external frontal lobes are separated from the obtuse internal orbital angles by a rather wide triangular hiatus, in which the external antennae are placed. The orbits are scarcely broader than long. The upper margin presents externally two triangular incisions, the external angle is obtusely dentiform, and separated from the lower margin by a triangular hiatus; the latter is finely granulated like the upper margin and terminates at its internal angle into a prominent dentiform lobe.

The antero-lateral margins are a little longer than the

postero-lateral ones and armed, behind the extraorbital teeth, with four triangular teeth. The two first are subacute, the two posterior ones very acute, almost spiniform, and somewhat directed forward. The penultimate tooth projects a little more outward than the last, so that the cephalothorax presents its greatest width at the penultimate teeth. The margins of these teeth are ornamented, especially at their base, with acute conical granules, and the antero-lateral teeth are also somewhat granulated above. The postero-lateral margins are nearly straight and somewhat granulated. There is, finally, a transverse sinuated groove immediately before the posterior margin of the cephalothorax.

The lateral parts of the under surface of the cephalothorax are covered with long hairs, especially in the middle and posteriorly; they are also somewhat granulated.

The second joint of the outer foot-jaws is marked with the usual longitudinal furrow near and parallel with the inner margin; this furrow reaches neither to the anterior, nor to the posterior margin of the joint. The third joint is slightly broader than long and quadrangular; its anterior margin is straight, the external margin very slightly concave. The outer foot-jaws are almost smooth, though punctate.

The sternum is smooth, shining and somewhat punctate, especially anteriorly. The male abdomen is five-jointed. The penultimate joint is somewhat longer than broad, the terminal joint obtusely rounded and a little shorter than broad at its base; the abdomen is smooth, except the lateral sides of the basal segment which are granulated.

The legs resemble those of *Etisodes Electra*. The right chelipede is the larger in both specimens. The arms project scarcely beyond the lateral margins of the cephalothorax. Some small acute teeth are observed on the upper margin, which is clothed with long hairs; the anterior margin presents a few acute granules, but the infero-external margin is rounded and unarmed. The distal margin of the outer surface is also somewhat hairy. The arms are for

the rest almost smooth. The wrist is armed with an acute tooth at the inner angle, below which a second, somewhat smaller one, occurs. The upper surface bears a tubercular eminence near the articulation with the hand, and appears somewhat rugose, uneven and punctate. The larger hand is twice as long as high, the fingers included; the smaller one appears to be comparatively a little longer. The upper margin of the palm presents three tubercular eminences at the proximal end; the outer surface is covered with numerous slightly transverse or oblique and reticulating rows of confluent and little distinct granules, some of which are finer and smaller than the others. These granules are, however, scarcely distinguishable to the naked eye. The under margin of the palm is smooth and rounded. These transverse and oblique granular ridges are a little more prominent on the smaller than on the larger hand. The fingers measure scarcely two thirds of the length of the palm. They are widely gaping. The mobile finger is strongly arcuate and presents two longitudinal furrows on its upper margin, of which the inner one is very short; three tubercular eminences exist at the base of the upper margin, and are placed transversely. The inner margin of this finger is armed with a strong, obtuse tooth at the base, with a much smaller tooth immediately before it. The lower finger, which is also longitudinally sulcate on its outer surface, is slightly curved upward at its tip, and armed in the middle with a strong tooth, which is preceded both on the outer and inner side by three or four smaller teeth. The strongly excavated extremities of both fingers are ornamented with a tuft of yellow hairs. The teeth with which the fingers of the smaller hand are armed, are much smaller, especially those of the dactylus. The inner surface of the hands and of the fingers is quite smooth.

The ambulatory legs are short. They are armed along their upper margins with small acute conical granules, which become somewhat larger and spiniform on the dactylopodites; some smaller granules are moreover observed

on the lower or posterior margins of the propodites and at the base of those of the meropodites. The outer surface of these legs is for the rest nearly smooth. They are covered along their margins with tolerably long yellow hairs.

Measurements:	♂	♂
Greatest width of the cephalothorax	21 ³ / ₄ mm.	14 mm.
Length » » »	14 ² / ₃ »	9 ³ / ₄ »
Distance between the external orbital		
angles	12 ¹ / ₄ »	8 ² / ₅ »

The cephalothorax presents, on a pale yellowish gray ground-colour, a few purplish spots, one on the middle of the gastric and one on the cardiac region; that part of the upper orbital margin which lies between the two incisions, is also marked with purple. The hands and the other legs are also marbled with this colour. The fingers are pale brown, with white tips and white teeth, and the brown colour does not extend on the palm.

The hands of this species somewhat resemble those of *Actaea Danae* A. M. E. = *Actaeodes areolatus* Dana (Dana, l. c., Pl. IX, fig. 8b).

Etisodes frontalis was discovered in the Sooloo Sea.

5. *Epixanthus corrosus* A. M. E.

Confer: de Man, in: Archiv f. Naturgeschichte, Jahrg. 53, 1888, p. 292, Pl. XI, fig. 3, and in: Zool. Jahrbücher von J. W. Spengel, T. IV, 1889, p. 422.

The Leyden Museum contains a single male from Padang.

The figure of this crab in the »Nouv. Archives du Muséum, T. IX. pl. 9, fig. 1" is not quite exact, as I found by an examination of the small type-specimen of this species in the Paris Museum. The cephalothorax indeed has been drawn a little too long. The front, which in larger individuals is comparatively narrower than in the young ones, has been well figured.

The cephalothorax of the Padang specimen is compara-

tively a little less enlarged than that of the adult individual from Batavia, which I described some time ago.

Measurements:	Type specimen of Paris.	Padang specimen.
Breadth of the cephalothorax. .	13 mm.	27 mm.
Length » » » . .	$7\frac{2}{5}$ »	$15\frac{3}{4}$ »
Distance between the external orbital angles	$5\frac{1}{2}$ »	$9\frac{1}{2}$ »

6. *Epixanthus subcorrosus*, n. sp.

(Pl. 1, fig. 3).

The Leyden Museum has purchased from the Museum Godeffroy two specimens of a new *Epixanthus*, a male and an ova-bearing female, collected on the Island of Upolu.

This new species at first sight strongly resembles *Epix. frontalis* M. E., and is apparently more closely allied to this species than to *Epix. corrosus* A. M. E. = *rugosus* Kossm. I have before me specimens of *Epix. frontalis* (Pl. 2, fig. 4) from the Mergui Archipelago and from the Bay of Batavia, and furthermore the two specimens of *Epix. corrosus* mentioned above.

As to the general form of the cephalothorax, this new species strongly resembles *Epix. frontalis*; thus the proportion of the breadth and the length is precisely the same, and the upper surface is as much depressed. As in *Epix. frontalis*, the upper surface is neither lobulated nor grooved, except on the postfrontal or epigastric region, where there is the usual longitudinal median suture which is posteriorly bifurcated.

The epigastric lobes are faintly indicated. The upper surface of the cephalothorax of *Epix. frontalis* appears, when seen under a lens, somewhat minutely granulated anteriorly and towards the antero-lateral margins; in our new species, however, the upper surface is distinctly rugose and uneven on the antero-lateral parts in front of the minutely granulated line, which in both species

proceeds from the last antero-lateral tooth obliquely forward and inward. The upper surface of the front appears likewise slightly rugose and granular. Now I must remark that these rugosities are considerably less developed in *Epix. subcorrosus* than in *Epix. corrosus*. These rugosities are also observed on the postero-lateral sides, immediately behind the oblique granulated line. The rest of the upper surface of the cephalothorax is quite smooth as in *Epix. frontalis*, and appears only minutely punctate when seen under a magnifying glass; the points are, however, a little more distinct and more crowded than in *Epix. frontalis*.

In *Epix. corrosus*, on the contrary, the whole upper surface appears distinctly granulated.

As regards the form of the front and the size and the shape of the orbits, our species almost entirely agrees with *Epix. frontalis*, but the distance between the external orbital angles (and consequently also the front) is a little broader in proportion to the breadth of the cephalothorax in *Epix. frontalis* than in *Epix. subcorrosus*, as is shown by the measurements given below. Thus the upper margin of the orbits is entire and the lower one does not present a hiatus near the external angle, which is not at all prominent. The antero-lateral margins are comparatively as long as those of *frontalis* and are, quite as in this species, divided into four lobes; these lobes are similar to those of *Epix. frontalis* and are separated by notches of quite the same form, but the third lobe is comparatively a little longer. In *Epix. frontalis* the second anterolateral lobe is one and a third, in *Epix. subcorrosus* scarcely one and a seventh as long as the third lobe. At first sight, therefore, the second lobe appears distinctly longer than the third in *Epix. frontalis*, but scarcely so in *Epix. subcorrosus*.

The lower surface of the cephalothorax at the subhepatic region is only minutely granular in *Epix. frontalis*, but moreover slightly rugose in the other species. The basal joint of the outer antennae of *Epix. frontalis* is, for a

somewhat longer extent, in contact with the infero-lateral process of the front, and comparatively a little broader than in *Epix. subcorrosus*.

As to the external maxillipedes, I will observe that the merus-joint is a little more transverse, and the exognath also slightly broader in our new species than in *Epix. frontalis*. The abdomen is seven-jointed and strongly resembles that of the other species, but the penultimate segment is slightly more transverse in *Epix. subcorrosus*, in both sexes, and the abdomen of the female is generally more enlarged.

The anterior legs are comparatively a little shorter and a little less slender, but for the rest strongly resemble those of *Epix. frontalis* as to their form; they differ, however, essentially by the upper surface of the wrist and the upper margin of the palm being distinctly rugose and uneven, whereas they are smooth or nearly smooth in *Epix. frontalis*.

The outer surface of the palm, which is strongly rugose and granulated in *Epix. corrosus*, is perfectly smooth both in *Epix. frontalis* and in *Epix. subcorrosus*, at least in the larger hand, the outer surface of the palm of the smaller hand being somewhat minutely granular, when seen under a lens, in both species. As to the form and the dentition of the fingers, *Epix. frontalis* agrees with *Epix. subcorrosus*, but the distal half only is black coloured, whereas this colour extends slightly farther in *Epix. frontalis*.

The ambulatory legs resemble those of *Epix. frontalis*, but they are comparatively a little shorter and present therefore a slightly less slender form.

Epix. subcorrosus is closely allied to *Ozius Agassizii* A. M. E. from Panama and to *Ozius reticulatus* Isis Desborne and Schramm, which inhabits the West-Indian Seas. Our species differs from the former by the more regularly oval form of the cephalothorax and by the hands being subcorrose on the upper margin, but not covered with small tubercles, whereas it may be distinguished from *Ozius*

reticulatus by the different form of the hands, which are less high in proportion to their length.

Ozius rugulosus Stimps. differs by a less enlarged, more convex cephalothorax, by the shorter fingers of the anterior legs, etc.

When we exclude *Epix. dentatus* White, which is easily recognized by the prominent antero-lateral teeth separated from one another by deep incisions, the three other Indo-Pacific species of *Epixanthus* may be distinguished as follows:

Posterior half of the upper surface of the cephalothorax and outer surface of the anterior legs	{	distinctly granulated.	<i>corrosus.</i>
		smooth; antero-lateral regions, upper surface of the wrist and upper margin of the hands	distinctly rugose.
			smooth or only minutely granular.
			<i>subcorrosus. frontalis.</i>

The dimensions of the two specimens of *Epix. subcorrosus* are the following:

	♂	♀
Breadth of the cephalothorax . .	21 ¹ / ₄ mm.	25 mm.
Length » » . .	12 ¹ / ₂ »	14 ³ / ₄ »
Distance between the external orbital angles	10 ¹ / ₃ »	11 ² / ₃ »

I add the measurements of the three specimens of *Epix. frontalis* M. E., mentioned above:

	♂	♂	♀
Breadth of the cephalothorax	30 mm.	20 ² / ₅ mm.	24 ¹ / ₂ mm.
Length » » »	18 »	12 ¹ / ₂ »	14 ¹ / ₃ »
Distance between the external orbital angles	15 »	11 »	12 ¹ / ₃ »

The upper surface of the cephalothorax of *Epix. subcorrosus* seems to be ornamented with a few symmetrically arranged small spots.

7. *Cardisoma quadratum* de Sauss.

Cardisoma quadrata, de Saussure, Mém. pour servir à l'Histoire naturelle du Mexique, des Antilles et des Etats-unis. 1^e Livraison, Crustacés, p. 22, fig. 13. 1858.

Cardisoma quadratum, S. J. Smith, in: Transactions Connecticut Acad. of Arts and Sciences, vol. II, 1869, p. 16.

One adult male from the West-Indies, collected by Mr. Neervoort van de Poll, and a somewhat younger female, collected at the Island of Aruba by Prof. Martin.

These specimens have certainly reached the largest size which this species may attain; they are considerably larger than those which were measured by Smith. Nevertheless they present still distinctly all the characters by which this species differs from *Cardisoma Guanhumí*. According to de Saussure the distance between the external orbital angles is, in young specimens, a little longer than the length of the cephalothorax and measures $\frac{5}{6}$ of the breadth of the latter. In the female specimen the external orbital angles are exactly as far distant from one another as measures the length of the cephalothorax, and in the male the length of the cephalothorax is a little larger than the distance between the external orbital angles. Both in the male and in the female there is a very small, though distinct epi-branchial tooth at a short distance behind the acute external orbital angles, and the raised line defining the antero-lateral margins is still distinctly developed in both individuals. The lateral sides of the cephalothorax are somewhat swollen, and project but little beyond the raised lines which define the lateral margins.

The orbits are comparatively high and only little more than once and a half as broad as high; they are comparatively a little higher in the male than in the female specimen, and a little broader than the anterior margin of the front. The inferior margins of the orbits pass with an obtuse rounded angle to the extra-orbital teeth. The

basal joint of the external antennae is slightly enlarged and about once and a half as broad as high, and has the anterior margin emarginate for the insertion of the second joint.

In the male the larger chelipede is on the left, in the female on the right side. In both specimens the arm is sharply trilateral, and the internal as well as the external margin of the under surface are armed with several more or less acute small teeth, more developed in the female than in the male, whereas the upper margin is transversely wrinkled. The outer surface of the arm is somewhat granular. The upper surface of the carpus is almost smooth in the larger, but distinctly granulated on the inner and outer sides in the smaller chelipede; the carpus of the larger chelipede is armed with a small acute tooth at the inner angle of its upper surface, that of the smaller with a longer and more acute tooth. The larger hand is about as long as the breadth of the cephalothorax. The upper and especially the lower margin of the palm are granulate, the outer surface is smooth and punctate, the inner surface a little granular. The upper margin of the mobile and the lower margin of the immobile finger of the larger hand are covered with small sharp granules. The fingers of the larger hand of the male are a little gaping, scarcely also those of the female.

The meropodites of the ambulatory legs are armed with an acute tooth at the distal end of their upper margin. The legs are somewhat hairy and covered, especially on the propodites and carpopodites, with tufts of rather short black hairs.

This species is most closely allied to *Cardisoma armatum* Herklots from the western coast of Africa, as is already observed by S. J. Smith, but I may add that it likewise so strongly resembles *Card. Urvillei* M. E., which inhabits the islands of Samoa, Celebes and the Moluccas, that it also might be mistaken for this Indian species.

Measurements:	♂	♀
Distance between the ext. orb. angles	56 mm.	52 $\frac{1}{2}$ mm.
Greatest width of the cephalothorax, the swollen lateral parts of the body included	75 »	70 »
Length of the cephalothorax . . .	59 »	53 »
Breadth of the orbits	19 »	18 »
Height » » »	11 $\frac{3}{4}$ »	10 $\frac{1}{2}$ »
Length of the larger hand . . .	77 »	67 $\frac{1}{2}$ »

Genus *Gelasimus* Latr.

I am acquainted by personal observation with fifteen Indopacific species of this genus, which may be distinguished by the following characters:

I. Front between the eyes narrow.

A. Lower wall of the orbits without an accessory row of granules near the inferior margin.

α . Anterior margin of the arm of the larger chelipede of the male with an acute and prominent tooth. Cephalothorax little narrowed backwards.

β . Orbits only a little oblique. Hand internally with two strongly granulated ridges. *vocans* M. E.

$\beta\beta$. Orbits very oblique. Hand internally without granulated ridges. *tetragonon* Herbst.

$\alpha\alpha$. Anterior margin without an acute and prominent tooth. Cephalothorax more or less strongly narrowed posteriorly.

γ . Lower finger or index with a single tooth a little before the middle. Hands elongate. *Dussumieri* M. E.

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γγ. Lower finger with two teeth.

δ. Lateral margin arcuate
in the shape of an S.

Frontal furrow narrow. . *arcuatus* de Haan.

δδ. Lateral margin nearly
straight, very oblique.

Frontal furrow broad. . *acutus* Stimps m.

AA. Lower wall of the orbits ornamented
with an accessory row of granules.
Cephalothorax more or less narrowed
backwards.

α. Mobile finger or dactylus with a
prominent lobe or tooth at the
distal extremity *coarctatus* M. E.

αα. Mobile finger without a promi-
nent tooth at the distal extremity.

β. Lower finger with two only
slightly promin. lobes or teeth. *forcipatus* (Ad. &

ββ. Lower finger presenting but White) de Man.
one single tooth.

γ. Tooth of the lower finger
conical, a little before
the middle. *Urvillei* M. E.

γγ. Tooth of the lower finger
broadly triangular, a little
beyond the middle. . . *signatus* Hess.

II. Front between the eyes broad.

A. Lower oblique crest of the inner sur-
face of the palm quite absent. Dactylus
(mobile finger) with a prominent
tooth at the distal extremity. . . *inversus* Hoffm.

AA. Lower oblique crest more or less
distinct. Dactylus without a tooth
at the extremity.

α. Upper border of the palm mar-
gined by a slightly raised edge.

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- β. Cephalothorax moderately narrowed backwards. Hand elongate, fingers considerably longer than the palm. Dactylus not furrowed on its outer surface. *Gaimardi* M. E.

ββ. Hand rather short, fingers little longer than the palm.	Cephalothorax moderately narrowed backward. Fingers scarcely longer than the palm. Dactylus not furrowed on its outer surface. Inner surface with two parallel rows of slightly prominent granules near the articulation of the fingers <i>chlorophthalmus</i> Latr.
	Cephalothorax extraordinarily narrowed backward. Fingers almost once and a half as long as the palm. Dactylus with a distinct longitudinal impression on the outer surface. Only one single row of granules near the articulation of the fingers. <i>triangularis</i> A. M. E.

αα. Upper border of the palm rounded.

- γ. Cephalothorax scarcely narrowed backwards. Antero-lateral margins nearly parallel. Inner margin of the index only slightly arcuate before the tip. *lacteus* de Haan.

- γγ. Cephalothorax distinctly narrowed backwards. Antero-lateral margins oblique and convergent. Index with

a prominent tooth immediately before
the extremity. *annulipes* Latr.

8. *Gelasimus vocans* M. E.

(Pl. 2, fig. 5).

Gelasimus vocans, H. Milne Edwards, in: Annales des Sciences Naturelles, T. XVIII, 1852, p. 145, Pl. III, fig. 4.

Gelasimus vocans, de Man, in: Notes from the Leyden Museum, Vol. II, 1880, p. 67. — Miers, Report on the Brachyura of the Challenger Expedition, 1886, p. 242.

I have before me the following specimens, about which I will remark the following.

Three male specimens collected at Atjeh, Sumatra, from my own collection. They apparently belong to the typical form of this species, and I have figured the larger hand of one of them (fig. 5). The inner margin of the immobile finger is armed with two triangular, prominent teeth, of which the distal one is slightly larger than the other, and with a third very small one quite at the base; the mobile finger presents two small prominent teeth near the base and a third still smaller one which is found a little before the prominent distal tooth of the index. The two crests on the inner surface of the palm are strongly developed.

Secondly a male from the Island of Morotai. This specimen only differs from the foregoing ones by the two prominent teeth of the lower finger, these being about of the same form and size.

In the third place an adult male and an ova-bearing female from the Fiji Islands, and two somewhat younger males and a female from the Samoa Islands. In these specimens the larger hand of the male appears a little more elongate than in the Atjeh-specimens, i. e. slightly longer in proportion to the height, and the lower margin is less strongly arcuate. The middle one of the three teeth of the immobile finger is much less prominent, more or

less rounded and agrees with the quoted figure of Milne Edwards; the distal tooth is also comparatively smaller, especially in the adult male from Fiji. In the latter the dactylus is also comparatively higher than in the other specimens, so that the fingers leave a small hiatus between them when closed, and the dactylus presents no trace of the small distal tooth which exists in the other specimens. These individuals from the Fiji and Samoa Islands are probably to be referred to the variety *cultrimanus* Ad. & White, though, according to Miers, in the type-specimens of that form the proximal tooth of the two large triangular teeth of the index is always entirely wanting, whereas a trace of it still exists in our specimens. I have figured the hand of the larger male from Samoa (fig. 5^a).

The larger hand of one of the Atjeh males has a length of $31\frac{1}{2}$ mm. and is 14 mm. high; these numbers are for the adult male from Fiji $42\frac{1}{2}$ mm. and $17\frac{1}{3}$ mm., and for the larger male from Samoa 33 mm. and 13 mm.

9. *Gelasimus tetragonon* Herbst.

(Pl. 2, fig. 6).

Gelasimus tetragonon, Herbst; Milne Edwards, l. c. p. 147, Pl. III, fig. 9. — Kingsley, in: Proc. Acad. Nat. Sciences of Philadelphia, 1880, p. 143, Pl. IX, fig. 11.

Gelasimus variatus, Hess, Beiträge z. Kenntniss der Decapodenkrebse Ost-Australiens, 1865, p. 20, Pl. VI, fig. 7.

An adult male and two very young males from Tahiti, and a fine male and a female without eggs from the Samoa Islands.

The nearest ally of this species is *Gelas. vocans* M. E. The cephalothorax of *Gelas. tetragonon* is, however, strongly convex in the antero-posterior direction, much more than that of *Gelas. vocans*, the orbits have a much more oblique direction and the front and the frontal furrow are comparatively broader. The lateral margins of the cephalothorax are indicated in both

species by a minutely granulated, little prominent line. In both species also the cephalothorax appears little narrowed backwards and they may be distinguished already by this character alone, at first sight, from many others, as e. g. from *Gelas. Dussumieri*, *arcuatus*, *coarctatus*, *acutus*, *Urvillei* etc. The inferior orbital margin does not present even a trace of an accessory row of granules, which occurs in other species, as e. g. *Gelas. signatus* Hess, neither in the male nor in the female.

In both species the anterior margin of the arm of the larger chelipede of the male is armed with an acute prominent tooth near the distal end. The carpopodite is perfectly smooth on its rounded external surface, and presents only a few minute granules on the upper surface towards the inner margin. The larger hand shows some resemblance, as to its general form, to that of *Gelas. acutus* Stimps. (vide de Man, in: Journal Linnean Soc. of London, Vol. XXII, Pl. VIII), but the inner surface of the palm, though being somewhat granulated, does not bear the granulated ridges which exist in that species and which are so strongly developed in *Gelas. vocans*. The outer surface of the palm is rather finely granulated, the fingers are only a little longer than the palm. The immobile finger, which is slightly curved upward, presents, about as in *Gelas. vocans*, a shallow pit at its base and is here a little more coarsely granulated; it is marked on this place with a large red patch, which, according to Miers, extends sometimes over the whole outer surface of the palm. Both fingers are regularly tapering. The lower finger bears two little prominent teeth or prominences on the distal half of the inner margin; on the dactylus only six or seven somewhat larger and several smaller granules occur.

The fingers of the smaller hand of the male are a little shorter in proportion to the length of the palm than in *Gelas. vocans*.

The ambulatory legs fully resemble those of the latter species.

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Gelas. tetragonon Herbst is distributed from the Red Sea and Zanzibar to the Sandwich Islands, Tahiti and Sydney (Hess).

10. *Gelasimus Dussumieri* M. E.

Gelasimus Dussumieri, H. Milne Edwards, in: Annales des Sciences Naturelles, T. XVIII, 1852, p. 148, Pl. IV, fig. 12.

Gelasimus Dussumieri, de Man, in: Journal Linnean Soc. of London, Vol. XXII, 1888, p. 108, Pl. VII, fig. 2—7.

The Leyden Collection contains five male specimens from Java, some of which are adult, a male from the Island of Nossy-Faly near Madagascar, a large number of rather young specimens, both males and females, from Amboina, and two male specimens from the Island of Ponapé, purchased from the Museum Godeffroy. I have given a complete description of this common Indian species in my »Report on the Crustacea of the Mergui Archipelago», so that I will only add the following remarks.

In the specimen from Nossy-Faly the immobile finger of the larger hand is rudimentary; this hand has been figured by Hoffmann (Crustacés de Madagascar, 1874, Pl. III, fig. 22).

In a few male specimens of those collected at Amboina and which are all very young, I observe a trace of an accessory row of granules on the walls of the orbits near the inferior margin. This fact is of some importance as there is usually in this species no trace of that accessory row. But as the cephalothorax of these individuals has exactly the same form as that of the other specimens, being quite as long in proportion to the distance between the external orbital angles, and as they have been collected in the same locality, they are without any doubt to be referred to the same species.

It is not easy to indicate the differences by which *Gelas. Dussumieri* may be distinguished from the Japanese *Gelas. arcuatus* de Haan. The lateral margins of the cephalotho-

rax have a different direction; they form a regularly undulate, S-like line in the species of de Haan, different from what is seen in *Gelas. Dussumieri*.

The two longitudinal grooves by which the gastric and cardiac regions are separated from the branchial regions, are deep in the male of *Gelas. Dussumieri*, but rather shallow in the other species. The external orbital angles are much more acute and directed more obliquely outward than those of *Gelas. arcuatus*.

The larger hand of the male has a different form in both species. The lower finger of *Gelas. Dussumieri* is constantly armed with only one single prominent tooth a little before the middle, but for the rest it is unarmed and terminates in an acute point, slightly curved upward. The dactylus or mobile finger presents only some more or less prominent granules along its proximal half. The lower finger of *Gelas. arcuatus*, on the contrary, presents always two teeth, one a little before or in the middle, the other near the extremity, and more or less prominent granules are observed in this species along the whole length of the inner margin of the dactylus.

The ambulatory legs, finally, are a little less slender in *Gelas. arcuatus*, the meropodites being slightly more enlarged.

I give the measurements of some specimens:

	Millim.			
	1.	2.	3.	4.
Distance between the ext. orb. angles	$37\frac{2}{3}$	$23\frac{1}{4}$	$18\frac{1}{3}$	$15\frac{1}{2}$
Length of the cephalothorax (front included)	$22\frac{1}{4}$	14	$11\frac{1}{3}$	$9\frac{3}{4}$
Length of the larger hand	72	41	$22\frac{1}{2}$	$18\frac{1}{2}$
» » » palm of ditto	18	12	$9\frac{1}{2}$	9

Nº. 1, adult male from Java; Nº. 2, male from Ponapé; Nº. 3, young male from Amboina without, and Nº. 4, young male from Amboina provided with a trace of an accessory row of granules near the inferior margin of the orbits.

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11. *Gelasimus arcuatus* de Haan.

(Pl. 3, fig. 7).

Gelasimus arcuatus, de Haan, Fauna Japonica, Crustacea, p. 53.
Pl. VII, fig. 2.

This Japanese species is apparently still insufficiently known. I have before me two typical specimens from the Leyden Museum, one of which agrees exactly with the quoted figure in de Haan's classical work, whereas the other represents an interesting individual variety.

It differs from *Gelas. vocans* M. E. and *Gelas. tetragonon* Herbst by the form of the cephalothorax, which is strongly convex in the antero-posterior direction, and considerably narrowed backwards; its lateral margins, defined by a rather prominent carina which is only slightly granulated anteriorly, present a characteristic S-like course, which has been very well figured by de Haan. The orbits are transverse, so that the acute external orbital angles, which are directed almost straightly forward and scarcely outward, project nearly as far forward as the middle portion of the upper orbital margin. The inferior one of the two lines which form the upper orbital margin is distinct and tolerably far distant from the upper line. The inferior margin presents no trace of an accessory row of granules; this margin is distinctly crenulate along its whole length. The frontal furrow is narrow and linear with parallel margins, but its form appears rather triangular in the figure of de Haan, which is not exact.

The anterior margin of the arm of the larger chelipede of the male is never armed with a prominent tooth, which exists in *Gelas. vocans* and in *Gelas. tetragonon*, but it bears only a few small granules. The upper surface of the wrist is rather coarsely granulated, considerably flattened and distinctly separated from the entirely smooth and convex outer surface. The size of the larger chela is somewhat variable; in some specimens it is twice as long

as the width of the cephalothorax, and a similar specimen has been figured by de Haan, but in the other type specimen the larger hand is scarcely more than once and a half as long as the distance between the external orbital angles. The hand is rather elongate, but the comparative length of the fingers is as much variable as the length of the hand itself. In the specimen figured by de Haan the fingers are twice as long as the palm and considerably gaping, the dactylus being strongly arcuate. In the other specimen the little gaping fingers are slightly more than once and a half as long as the palm; the upper finger is straight, the larger hand presents some resemblance to that of *Gelas. vocans* M. E. The outer surface of the palm is coarsely granulated, the granules being largest towards the slightly concave base of the immobile finger. In *Gelas. vocans* the immobile finger is more distinctly concave at the base than in the species of de Haan and almost quite smooth, whereas in *Gelas. arcuatus* it is also covered with granules. In both species the upper border of the palm is distinctly margined. The fingers have nearly parallel margins in the specimen figured by de Haan, and they are tapering only near the extremities; but in the other specimen they are regularly tapering towards the tips. Both fingers are longitudinally furrowed on the middle of their outer surface, whereas the mobile finger of *Gelas. vocans* and of *Gelas. tetragonon* is never furrowed on its outer surface.

The inner margin of the lower finger presents a more or less prominent tooth a little before the middle in the specimen similar to that which was figured by de Haan, and a second less prominent one a little before the extremity; in the other specimen, with shorter hand, the first tooth stands almost in the middle of the margin. The small tooth which in *Gelas. vocans* is observed at the base of this finger, does not occur in *Gelas. arcuatus*. The dactylus or upper finger appears somewhat granulated at the base; its inner margin is armed in the specimen with

elongate hand with two small teeth, one of which stands a little before the first prominent tooth of the index, the other a little before the subdistal tooth of the latter. In the other specimen it is not provided with prominent teeth, but it presents only several granules, four or five of which are larger than the others, and the largest of which lies quite opposite the prominent tooth on the middle of the index. The ordinary crests on the inner surface of the palm are distinct and coarsely granulated. The ambulatory legs are less slender than those of the three preceding species; the meropodites are more enlarged in proportion to their length, so that e. g. those of the penultimate pair are exactly twice as long as broad.

I will finally observe that *Gelas. acutus* Stimps. from Macao and from the Mergui Archipelago, of which I have published a complete description in my »Report on the Mergui Crustacea'', is somewhat allied to *Gelas. arcuatus* de Haan. The anterior as well as the ambulatory legs present indeed the most striking resemblance in both species, when comparing Stimpson's species with the variety of *Gelas. arcuatus* in which the fingers of the larger hand of the male are little longer than the palm. But the cephalothorax of *Gelas. acutus* is still more narrowed backwards; the lateral margins are straight, extremely oblique and not presenting an S-like course; the external orbital angles, finally, are much more acute and directed very obliquely outward, projecting much less forward than the middle part of the upper orbital margin.

The measurements of the two Leyden types of *Gelas. arcuatus* de Haan are as follows:

	1.	2.
	♂.	♂
Distance between the ext. orb. angles	36 $\frac{1}{2}$ mm.	34 $\frac{1}{2}$ mm.
Length of the cephalothorax (front included).	22 $\frac{1}{3}$	20 $\frac{3}{4}$ »
Length of the larger hand	67	54 $\frac{1}{2}$ »
Height of the palm.	21	19 $\frac{1}{2}$ »
Length of the fingers	46	33 $\frac{1}{2}$ »

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12. *Gelasimus coarctatus* M. E.

(Pl. 3, fig. 8).

Gelasimus coarctatus, H. Milne Edwards, l. c. p. 146, Pl. III, fig. 6. — A. Milne Edwards, in: Nouv. Archives du Muséum, T. IX, p. 272, Pl. XII, fig. 4.

Gelasimus forcipatus, Kingsley, l. c. p. 142, Pl. IX, fig. 9.

A fine male from the Moluccas, collected by Macklot, and a young male from the Island of Ponapé.

This species is closely allied to *Gelas. Dussumieri* and *Gelas. Urvillei*, but differs by the following characters.

The cephalothorax resembles much that of *Gelas. Dussumieri*, it being about quite as long in proportion to the distance between the external orbital angles, but the lateral margins are (at least in our two specimens) straight or even slightly concave and still more oblique. The narrow frontal furrow presents the same form in both species. The wall of the orbits is ornamented with an accessory row of granules near the inferior margin; the row consists only of four or five rather prominent granules.

The larger hand of the male closely resembles that of *Gelas. Dussumieri*, but it may always be distinguished by the existence of a prominent tooth near the extremity of the upper or mobile finger; this tooth is constantly wanting both in *Gelas. Dussumieri* and in *Gelas. Urvillei*. In the young male from Ponapé this distal tooth is already present. Both fingers are longitudinally furrowed on their outer surface.

Measurements:	♂	♂
Distance between the ext. orb. angles	26 ¹ / ₄ mm.	15 ³ / ₄ mm.
Length of the cephalothorax . .	15 »	9 ² / ₃ »

I think Kingsley is wrong when uniting *Gelas. forcipatus* White with this species, because in the former also the lower finger of the larger hand of the male seems to be

toothed, which is not the case in *Gelas. coarctatus*.

Gelas. coarctatus is known from the Philippine Islands, Australia and New Caledonia.

13. *Gelasimus forcipatus* Ad. & White?

(Pl. 3, fig. 9).

Gelasimus forcipatus, Adams and White, Voyage of H. M. S. Samarang, Crustacea, 1848, p. 50.

It is not but with much hesitation that I refer a fine male specimen from the Indian Archipelago, probably from the shores of Celebes, to this species, which is only known to me by the short latin diagnosis reproduced by Milne Edwards (Ann. Sc. Nat. T. XVIII, 1852, p. 147).

This crab closely resembles the described variety of *Gelas. arcuatus* de Haan, in which the fingers of the larger hand are but little longer than the palm; it differs by the following characters. The lateral margins of the carapace are a little more oblique, so that the external orbital angles are more acute and directed a little more obliquely outward than in the species of de Haan. The front presents the same form and the orbits are equally transverse. The lower wall of the latter, however, is ornamented near the inferior margin with an accessory row of eight or nine small granules, which are not found in *Gelas. arcuatus* de Haan. The abdominal segments are comparatively a little less enlarged than in the Japanese species.

The larger hand has the same length, being almost once and a half as long as the distance between the external orbital angles. The palm, which is but little shorter than the fingers and almost as high as long, appears comparatively a little higher than the palm of *Gelas. arcuatus*. The outer surface is densely granulated and the granulation is a little finer and closer, the granules being somewhat smaller

than in the species of the »Fauna Japonica''. The upper border of the palm is margined and the lower border granulated about in the same manner in both species. The two crests on the inner surface of the palm are coarsely granulated in both forms. As I already observed, the fingers are scarcely longer than the palm and both are faintly furrowed in a longitudinal direction on their outer surface. They are regularly tapering and present about the same form as in the described variety of *Gelas. arcuatus*; the mobile finger is granulated at the proximal end of its upper margin. The inner margin of the dactylus is similar to that of the other species and armed with fourteen or fifteen granules, of which one in the middle and a few near the extremity are a little more prominent. The lower finger or index is scarcely concave at the base of its outer surface and armed along its inner margin with about the same number of granules; one of them, situated in the middle, is somewhat prominent and tooth-like, and a few at the extremity are also a little more prominent. These two prominences are, however, much less developed than in *Gelas. arcuatus*. The ambulatory legs, finally, have about the same form.

The upper surface of the cephalothorax of our specimen, preserved in spirits, is green anteriorly, violet posteriorly and on the lateral sides. The head is of a uniform reddish tinge.

I cannot identify this species with *Gelas. dubius* Stimpson from the Loo Choo Islands, because the orbits are not more oblique than those of *Gelas. vocans*, and because the lateral margins are distinct.

Gelas. acutus Stimpson (pl. 3, fig. 10) differs by the cephalothorax being more strongly narrowed backwards, by the nearly straight and extremely oblique lateral margins, and by the absence of an accessory row of granules on the walls of the orbits.

Measurements:

♂

Distance between the external orbital angles. . 34 mm.

Length of the cephalothorax (front included). . 20 »

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Length of the larger hand.	53 mm.
Height of the palm	21 »
Length » » »	24 »

14. *Gelasimus Urvillei* M. E.

Gelasimus Urvillei, H. Milne Edwards, l. c. p. 148, Pl. III, fig. 10.

Gelasimus Dussumieri, Hilgendorf, in: Baron von der Decken's Reise in Ost-Africa, Crustaceen, p. 84, Taf. IV, fig. 1.

Three probably adult males, collected by Messrs. Pollen and van Dam on the Island of Nossy-Faly.

Prof. Milne Edwards enabled me to study the original type-specimen of this species, which was discovered at Vanicoro, and which has been figured by his father.

The three Nossy-Faly individuals, which have been described by Hoffmann as *Gelas. Dussumieri*, perfectly agree with the Paris type, and belong evidently to the same species. They are, however, considerably larger than the Paris type, which is a rather young specimen.

Hilgendorf has published a very good figure of *Gelas. Urvillei*, for the specimens referred by him to *Gelas. Dussumieri*, evidently belong to *Gelas. Urvillei*. I refer therefore to those figures.

The nearest ally of this species is indeed *Gelas. Dussumieri* M. E. It differs firstly by the shape of the cephalothorax, which is a little shorter in proportion to the distance between the external orbital angles; the cephalothorax appears therefore slightly more enlarged anteriorly. In the second place the lateral margins are more oblique, so that the upper surface of the cephalothorax appears a little more narrowed backwards. The walls of the orbits are constantly ornamented near their inferior margin with an accessory row of small granules: I observe about ten or eleven granules which are placed near the middle portion of the lower margin of the orbits.

The anterior legs of the male quite resemble those of

Gelas. Dussumieri and I cannot find any essential difference. The hand of the larger specimen perfectly agrees with Hilgendorf's figure 1c, those of the two other specimens belong to a variety, which occurs also in *Gelas. Dussumieri* and which is characterized by the lower finger being fully unarmed. The meropodites of the ambulatory legs, finally, are a little more enlarged than those of *Gelas. Dussumieri*.

I give the measurements, in millimeters, of two specimens from Nossy-Faly, of the Paris type-specimen of *Gelas. Urvillei*, and of two male specimens of *Gelas. Dussumieri* from the Mergui Archipelago.

	1	2	3	4	5
	♂	♂	♂	♂	♂
Distance between the ext. orb. angles . .	$24\frac{1}{2}$	$23\frac{3}{4}$	$18\frac{3}{4}$	26	$20\frac{1}{2}$
Length of the cephal. (front included) . .	$13\frac{3}{4}$	13	$10\frac{1}{2}$	$15\frac{3}{4}$	$12\frac{3}{4}$
Length of the larger hand	41	$37\frac{1}{2}$	$17\frac{1}{2}$	$34\frac{1}{2}$	$22\frac{1}{2}$
Length of the palm of the larger hand. .	$13\frac{1}{2}$	10	$6\frac{1}{2}$	$9\frac{1}{2}$	$8\frac{1}{2}$

N°. 1 and 2 are Nossy-Faly specimens of *Gelas. Urvillei*.

N°. 3. Paris type of *Gelas. Urvillei*.

N°. 4 and 5. Male specimens of *Gelas. Dussumieri*.

The proportion of the distance between the external orbital angles, and the length of the cephalothorax is therefore in *Gelas. Urvillei* as 25 : 14, in *Gelas. Dussumieri* as 25 : $14\frac{3}{4}$ or as 25 : 15.

15. *Gelasimus signatus* Hess.

(Pl. 4, fig. 11).

Gelasimus signatus, Hess, Beiträge zur Kenntniss der Decapoden-krebse Ost-Australiens, 1865, p. 20, Taf. VI, fig. 6.

Gelasimus signatus, Miers, Report on the Zoolog. Collect. made during the voyage of H. M. S. Alert, 1884, p. 236.

Gelasimus signatus, de Man, in: Zoolog. Jahrbücher, herausgegeben von J. W. Spengel, Bd. II, 1887, p. 697.

Gelasimus bellator, Kingsley, l. c. p. 138, Pl. IX, fig. 3. (an etiam *Gelas. bellator* White?).

Two adult male specimens from the eastern coast of Australia. As to its general appearance, the cephalothorax

of this species closely resembles that of *Gelas. arcuatus* de Haan, but it differs by the different form of the front and by the existence of an accessory row of small granules on the lower wall of the orbits near the inferior margin. The front of *Gelas. arcuatus* is more distinctly constricted at the insertion of the eye-peduncles than in the other species; the frontal furrow extends beyond the middle of the front, is narrow, and its margins are parallel, but in *Gelas. signatus* the frontal furrow does not or only scarcely reach the middle of the front and it is broadly triangular, with rounded tip, and with divergent lateral margins (fig. 11^a). The orbits are transverse, quite as those of *Gelas. arcuatus*, but they are ornamented below with an accessory row of fourteen or fifteen small granules near the middle of the inferior margin, which are not found in the species of de Haan. The lateral margins have the same form and direction as those of *Gelas. arcuatus*, as they have the same undulated course in the form of a S. The abdomen of the male is a little less enlarged than in the Japanese species.

In both specimens the larger hand occurs on the left side. The anterior and the lower margin of the arm are finely granulate and the anterior margin presents a more or less distinct, compressed and denticulate lobe at the distal end. The outer surface of the wrist is smooth, the upper one is finely granulate and the internal margin somewhat denticulate. The hand (fig. 11^b) presents the same elongate and slender form as that of *Gelas. Dussumieri* and is a little more than once and a half as long as the distance between the external orbital angles. The outer surface of the palm is more finely granulate than in *Gelas. Dussumieri*; like in this species the inner surface of the palm is somewhat granulated in the middle and the two ordinary oblique rows of larger granules are equally distinct in both species. The fingers are twice and a half as long as the palm, and therefore appear comparatively as long

as those of *Gelas. Dussumieri*; they are smooth and as strongly compressed on the outer as on the inner surfaces. The outer surface of the lower finger is longitudinally furrowed and this furrow proceeds close to the lower margin of the finger; in *Gelas. Dussumieri* this furrow proceeds quite on the middle of the outer surface of that finger. The outer surface of the upper finger or dactylus is also faintly furrowed and the furrow proceeds on the middle of the finger. Whereas the immobile finger of *Gelas. Dussumieri* presents a prominent conical tooth a little before the middle, the inner margin of the lower finger of *Gelas. signatus* is armed with a broadly triangular lobe or tooth of a characteristic form at some distance beyond the middle (fig. 11^b); in the larger specimen the distance between the tip of this lobe and the extremity of the finger is distinctly shorter than the distance between the tip of the tooth and the base of the finger, but in the smaller specimen, the fingers of which are a little shorter in proportion to the length of the palm, the tip of the triangular lobe lies exactly as far from the base as from the extremity of the finger. The upper finger or dactylus has exactly the same form as that of *Gelas. Dussumieri* and the same dentition: I observe one small granule immediately before or opposite the tip of the large lobe of the index, and three or four granules near the proximal end of the finger.

The ambulatory legs present about the same form in both species.

The cephalothorax of these two specimens has a dark green colour; arm, carpus and palm of the larger chelipede are yellowish red, the fingers white.

The larger individual has the following dimensions:

	σ^7
Distance between the external orbital angles. . .	21 mm.
Length of the carapace (the front included). . .	12 $\frac{1}{2}$ »
Length of the larger hand	34 »
Length of the fingers	24 »

Gelasimus signatus inhabits the eastern coasts of Australia. *Gelas. bellator* Kingsley is certainly the same species, though Kingsley describes only one row of granules on the inner surface of the palm. But I do not know whether *Gelas. bellator* Ad. & White is also identical with this species or not.

16. *Gelasimus signatus* Hess, var.:
angustifrons de Man.

(Pl. 4, fig. 11^c).

The Leyden Museum contains twenty six specimens (twenty males and six females) of a *Gelasimus*, which I consider to form a distinct variety of *Gelas. signatus* Hess. They were collected on the seashore of Batavia, and only one female is provided with eggs. These specimens, which are of a somewhat smaller size than the two typical individuals from the eastern coast of Australia, which I have described above, indeed exactly agree in all their characters with these Australian types, with exception of the front. This latter is namely a little narrower in proportion to the distance between the external orbital angles and the frontal furrow is longer, reaches beyond the middle of the front and appears also much narrower with only little divergent lateral margins. I must, however, observe that in some specimens these characters are more distinctly pronounced than in others. The accessory row of granules on the lower walls of the orbits is distinctly present in all these individuals, both in the males and in the females.

In the fifteen male specimens, which are provided with their larger chelipede, eleven have it on the left and only four on the right side of the cephalothorax. This chelipede agrees perfectly with the Australian types, presenting as distinctly the characteristic triangular lobe or tooth beyond the middle of the lower finger, and the dactylus presenting quite the same granules. In one specimen the fingers are a little narrower and more slender than usual, and appear

also a little longer in proportion to the shorter palm. In another, on the contrary, the fingers are a little higher in proportion to their length as ordinarily and the lobe of the index is rounded and but little prominent. These are, however, individual variations.

I must finally remark that the coloration of these specimens differs also a little from the type, as the arm, the carpus and the palm of the larger hand are of a pale greenish or bluish gray colour, instead of presenting the yellowish red observed in the type.

Dimensions of the two largest specimens:

	♂	♀
Distance between the external orbital angles	17 $\frac{1}{4}$ mm.	14 $\frac{2}{3}$ mm.
Length of the cephalothorax . .	10 $\frac{1}{2}$ »	9 $\frac{1}{2}$ »
Length of the larger hand . . .	26 $\frac{1}{2}$	
» » » fingers	17 $\frac{1}{2}$	

17. *Gelasimus annulipes* Latr.

Gelasimus annulipes, Latreille, H. Milne Edwards, l. c. p. 149, pl. 4, fig. 15. — de Man, in: Notes from the Leyden Museum, Vol. II, 1880, p. 69; idem, in: Journal of the Linnean Soc. of London, Vol. XXII, 1888, p. 418, Pl. VIII, fig. 5—7; idem, in: Archiv f. Naturgeschichte, Jahrg. 53, 1888, p. 353.

Two male specimens belong to that variety, in which the larger hand is more slender and more elongate. In a typical specimen from the Mergui Archipelago the larger hand has a length of 22 $\frac{3}{4}$ mm. and a height of 8 $\frac{1}{4}$ mm. In the two specimens from Upolu these numbers are 24 $\frac{1}{3}$ mm. and 7 $\frac{1}{4}$ mm. for the larger, 23 mm. and 7 $\frac{1}{4}$ mm. for the smaller specimen. This variety occurs also in Amboina.

18. *Gelasimus Gaimardi* M. E.

Gelasimus Gaimardi, H. Milne Edwards, l. c. p. 150, Pl. IV, fig. 17.

I refer to this species a male and a female from Samoa

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some mostly young individuals from the Banda Sea, and twelve young specimens from Amboina.

This species is closely allied to the preceding and to *Gelas. Latreillii* M. E., of which I have a Paris type before me. The cephalothorax is strongly convex in the antero-posterior direction and comparatively a little longer in proportion to the distance between the external orbital angles than that of *Gelas. annulipes*. The orbits in the male are rather much oblique, the external orbital angles acute and directed obliquely outward, whereas they are directed straightly forward in *Gelas. lacteus* de Haan. The lateral margins are rather oblique and converge rather much backwards, a little more in the male than in the female. I do not observe accessory granules on the wall of the orbits of the females near the lower margin, which exist in the female of *Gelas. annulipes*.

The larger hand of the male agrees with the figure of Milne Edwards (Pl. IV, fig. 17a). The distal crest on the inner surface near the articulation with the dactylus is represented in the male from Samoa only by two small granules, and the other is also very indistinctly granulated; but in the male from the Banda Sea I observe two parallel distal rows of granules near the articulation of the mobile finger. I suppose that the development of these rows of granules is somewhat variable according to the individuals. In both males the lower finger presents a very small tooth close to the extremity; it bears, moreover, some more or less prominent granules, and in the male from the Banda Sea even a small tooth in the middle of the margin. The upper finger is strongly arcuate in the male from Samoa and appears unarmed, but in the male from the Banda Sea a few prominent granules are observed along the proximal half of the margin.

The meropodites of the ambulatory legs are a little more enlarged than those of *Gelas. annulipes*.

Measurements:	♂ Samoa.	♂ Banda.
Distance between the external orbital angles	18 ² / ₃ mm.	17 ² / ₅ mm.
Length of the cephalothorax	11 ¹ / ₂ »	10 ³ / ₄ »
» » » larger hand	28 »	27 »
Length of the meropodites of the last pair of legs.	6 ¹ / ₂ »	6 ² / ₅ »
Breadth of the meropodites of the last pair of legs.	2 ² / ₅ »	2 ¹ / ₅ »

I add the dimensions of the Paris type of *Gelas. Latreillii*:

	♂
Distance between the external orbital angles	22 ¹ / ₂ mm.
Length of the cephalothorax	13 ¹ / ₄ »
Length of the larger hand	37 »
» » » fingers of the larger hand	25 »
» » » meropodites of the last pair of legs	9 »
Breadth of the meropodites of the last pair of legs	4 ¹ / ₄ »

The meropodites of the ambulatory legs are rather considerably enlarged in *Gelas. Latreillii*, being only twice as long as broad; they are less enlarged in *Gelas. Gaimardi* and in *Gelas. annulipes*, whereas those of *Gelas. lacteus* are still narrower, as they are almost four times as long as broad.

19. *Gelasimus chlorophthalmus* Latr.

Gelasimus chlorophthalmus, Latreille: H. Milne Edwards, Hist. Nat. des Crustacés, T. II, 1837, p. 54, and in: Annales des Sciences Natur. T. XVIII, 1852, p. 150, Pl. 4, fig. 19.

Nec: *Gelas. chlorophthalmus*, Hilgendorf, in: Monatsberichte der königl. Akad. der Wissensch. Berlin, 1878, p. 803.

Two specimens, a male and a female, were presented

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in 1878 by Milne Edwards to the Leyden Museum under the name of *Gelas. Latreillii*. As I thought this name to be incorrect, I lately sent back the male specimen to Paris, whereupon Prof. Milne Edwards informed me that it is a true representative of *Gelas. chlorophthalmus* Latr.

The nearest ally of this species is *Gelas. Gaimardi* M. E., but they may be distinguished by the different form of the larger hand of the male. The cephalothorax of the male presents exactly the same form in both species, I find no difference of any importance. The two lines of the upper orbital margin are a little more distant from one another than in *Gelas. Gaimardi*. As to the cephalothorax of the female, I observe that the antero-lateral margins are directed a little more obliquely in *Gelas. Gaimardi* than in the species of Latreille, and that the two lines of the upper orbital margin are equally distant in both species. In both species there is no trace of an accessory row of granules near the lower orbital margin, neither in the male nor in the female.

The arm of the larger chelipede of the male has the same form in both species; in both I observe an obtuse tubercle a little before the distal end of the anterior margin, and in both the upper margin is a little granulated. In both the upper surface of the wrist is finely granulated. The larger hand of *Gelas. chlorophthalmus* is considerably higher in proportion to its length than in *Gelas. Gaimardi* and is only twice and a half as long as high, but that of *Gelas. Gaimardi* three times as long as high. Milne Edwards says that the palm is longer than the fingers; this is not the case on the figur which he published in 1853, nor in the male from New Caledonia. In our specimen the fingers are once and a third as long as the palm and the latter is quite as long as high. In both species the palm is margined on its upper border, which is not the case in *Gelas. annulipes*, where the upper border is simply rounded. The outer surface is exactly

as finely granulate as in *Gelas. Gaimardi*, the very small granules being visible for the naked eye only towards the upper margin. The under margin of the palm bears a row of granules, about as in *Gelas. Gaimardi* and *Gelas. annulipes*. The fingers are quite smooth, except the base of the dactylus which is somewhat granulate as in the other species. The fingers agree with the quoted figure as regards their form. The mobile finger presents at its inner margin four granules along the proximal half, and a fifth at the beginning of the distal third, but no prominent tooth. Whereas the immobile finger of *Gelas. annulipes* is marked with a longitudinal furrow close to the lower margin, the lower margin of the index of *Gelas. Gaimardi* and *Gelas. chlorophthalmus* is simply rounded and not furrowed, the furrow, which runs near the lower margin of the palm, being interrupted at the base of the finger. The inner margin of the index is armed with a small tooth immediately before the middle, preceded by four smaller granules, and a second smaller tooth is placed at the distal extremity. Milne Edwards describes the inner surface of the palm as wanting the granular crests; but I find in our specimen the three ordinary granular crests distinctly developed, one at the inner margin of the flattened under surface of the palm, the granules of which are little prominent, and two rows of granules near the articulation of the fingers.

The ambulatory legs also fully agree with those of *Gelas. Gaimardi*; those of *Gelas. annulipes* and of *Gelas. lacteus* de Haan are considerably more slender. So e. g. the meropodites of the penultimate pair of legs of the male have a length of 8 mm. and a breadth of $3\frac{1}{2}$ mm.; in a specimen of *Gelas. annulipes* these dimensions are respectively $6\frac{3}{4}$ mm. and $2\frac{1}{2}$ mm., and in a male of the Japanese *Gelas. lacteus* 10 mm. and $3\frac{3}{5}$ mm., in a male of *Gelas. Gaimardi*, however, $8\frac{1}{2}$ mm. and $3\frac{3}{5}$ mm.

Gelas. chlorophthalmus may also be distinguished by its colour (vide: Guérin, Icon. Crust., Pl. 4, fig. 3), the cephalo-

thorax being dark green, the larger band of a beautiful red, the fingers of a paler colour and the ambulatory legs reddish brown.

This species has been observed at Mauritius and seems to be very rare.

The two specimens were labelled »*Gelas. Latreillii*, Nouvelle Calédonie''; but this label not being applicable to these specimens, and Milne Edwards not quoting *Gelas. chlorophthalmus* amongst the species of New Caledonia, the locality where our specimens have been collected, remains uncertain.

20. *Gelasimus inversus* Hoffm.

(Pl. 4, fig. 12).

Gelasimus inversus, Hoffmann, Crustacés de Madagascar et de l'île de la Réunion, 1874, p. 19. Pl. IV, fig. 23—26.

Gelasimus chlorophthalmus, Hilgendorf, in: Monatsberichte königl. Akad. der Wissensch. zu Berlin, 1878, p. 803.

Three of the four original specimens of this species, which were described by Hoffmann, exist still in the Leyden Museum, unfortunately in a very bad and mutilated state. They have been collected on the Island of Nossy-Faly, where their indigenous name is »Cava tangena''.

There can be little doubt that the specimens referred to *Gelas. chlorophthalmus* by Hilgendorf belong to *Gelas. inversus*, and Hilgendorf, apparently, was not acquainted with Hoffmann's description. As this latter is rather complete, I will only compare the species with its nearest ally, viz. *Gelas. lacteus* de Haan.

The lateral margins of the cephalothorax are a little more oblique than those of the species of de Haan, in which the antero-lateral margins are directed forward and scarcely outward. As to the structure of the upper orbital margin, both forms fully agree with one another, the inferior of the two lines which constitute this margin, being very indistinct and scarcely separated from the upper line. The lower margin of the orbits of *Gelas. lacteus* appears slightly convex, when the cephalothorax is seen from above,

and distinctly crenulate along its whole length; the lower orbital margin of *Gelas. inversus*, however, is slightly concave in the middle and quite entire, except towards its external rounded angle, which appears somewhat crenulate. In both species the orbits present no trace of an accessory row of granules near the lower orbital margin.

The larger chelipede of the male is characteristic. The anterior margin of the arm is somewhat granulate in *Gelas. lacteus*, but in *Gelas. inversus* this margin is dilated distally in a longitudinal lamellate crest, which appears somewhat denticulate. The upper surface of the wrist is somewhat granulate, its inner margin finely denticulate, its outer surface nearly smooth. The larger hand has about the same form in both species, being three times as long as high, and the fingers being scarcely more than once and a half as long as the palm.

In *Gelas. inversus* the palm is a little longer than high, which is also the case in the other species. The upper border of the palm is slightly rounded in the Japanese species, but in *Gelas. inversus* this border is somewhat flattened, though also granulated, and separated externally from the outer surface of the palm by a longitudinal row of granules. The upper half of the outer surface of the palm is rather coarsely granulated, but in *Gelas. lacteus* this granulation is much finer: in both species the greater under half of the palm appears smooth for the naked eye, very finely granulate under a lens of sufficient power. The lower sharp margin of the palm is distinctly granulate in *Gelas. inversus*, but very finely so in the other species. The fingers are smooth for the naked eye, and present about the same form and length in both species. They are nowhere furrowed, neither in *Gelas. lacteus* nor in *Gelas. inversus*.

The granulation at the base of the dactylus is a little coarser in the species of Hoffmann than in the other. The mobile finger of *Gelas. inversus* is constantly

armed with a triangular prominent tooth at the distal extremity; in some specimens the granulated internal margin of this finger presents still a second smaller tooth a little beyond the middle, and a few somewhat prominent granules near the base, but in other specimens only the distal tooth of the dactylus exists. This distal tooth is not found in *Gelas. lacteus*. The dactylus is only slightly arcuate towards its extremity. The lower finger or index is nearly straight, scarcely directed upwards at the pointed extremity. The granulated and straight inner margin bears in *Gelas. inversus* only one single tooth, which lies immediately before the middle, and no teeth exist at the distal extremity; *Gelas. lacteus* presents also a small tooth a little before the middle, but the inner margin is somewhat arcuate immediately before the tip.

The inner surface of the palm is highly characteristic of this species. There is namely no trace of the more or less oblique granulated ridge, which in nearly all other species of this genus borders the under surface of the palm, proceeding in an oblique direction from the articulation of the wrist to the base of the index, but the internal surface of the palm is, on this place, simply rounded, smooth for the naked eye, very finely granulated when seen under a magnifying glass. In *Gelas. lacteus*, on the contrary, there is, like in most other species, a prominent oblique granulated crest, defining the under surface of the palm. *Gelas. inversus* presents, however, one single row of prominent granules near the articulation of the mobile finger, but this row exists also in *Gelas. lacteus*. For the rest the inner surface of the palm and of the fingers appears smooth for the naked eye in both species.

The ambulatory legs are slender, almost in the same degree as those of *Gelas. lacteus*: so e. g. the meropodites of the last pair of legs of the latter have a length of $7\frac{3}{4}$ mm. and a breadth of $2\frac{2}{5}$ mm., those of *Gelas. inversus*

respectively $7\frac{1}{4}$ mm. and $2\frac{1}{5}$ mm. The meropodites of the penultimate pair have a length of $8\frac{1}{3}$ mm., and a breadth of $3\frac{1}{4}$ mm. in *Gelas. inversus*, whereas these numbers are $10\frac{1}{3}$ mm. and $3\frac{3}{4}$ mm. in the Japanese species.

As will be seen when comparing my description with that of *Gelas. chlorophthalmus*, this species is quite distinct from *Gelas. inversus*.

Gelas. inversus Hoffmann has been collected on the shores of Mozambique and of the Island of Nossy-Faly.

21. *Gelasimus triangularis* A. M. E.
var. *variabilis* de Man.

(Pl. 4, fig. 13).

Gelasimus triangularis, A. Milne Edwards, in: Nouv. Archives du Muséum, T. IX, p. 275.

Gelasimus triangularis, de Man, in: Journal of the Linnean Soc. of London, Vol. XXII, 1888, p. 419, Pl. VIII, figs. 8—11.

The Leyden Museum contains about forty specimens (♂, ♀) which were collected at Amboina. These individuals present some slight differences from specimens of *Gelas. triangularis* from the Mergui Archipelago, which I have before me and which are to be considered as to represent the typical form of this species, having been compared with type-specimens of the Paris Museum by myself when writing my »Report on the Mergui Crustacea”.

As to the cephalothorax, I observe that the inferior margin of the orbits is a little less finely crenulate, especially externally, than in the Mergui specimens, and that an accessory row of fifteen or sixteen small granules exists on the lower wall of the orbits near the inferior margin, both in the male and in the female, which are not found in the Mergui form. In the second place the teeth with which the inner margins of the fingers of the larger hand of the male are armed, are placed otherwise than those which are found on the hands of the Mergui specimens. These teeth, indeed, are placed

in the seven male individuals before me, on four different manners, and on this reason I named this variety »*variabilis*». In two specimens the lower finger bears two teeth which stand, on the proximal half of the margin, at a small distance from one another, the smaller tooth quite at the base, the second, which is slightly larger, immediately before the middle of the margin. The longer distal end presents fourteen or fifteen granules, the fifth of which (counting from the tip) is a little more prominent than the others. In these individuals the upper finger is armed, quite at the base, with two teeth which are smaller than the opposite teeth of the index, and with two or three prominent granules near the distal end.

In three other specimens the proximal smaller tooth of the two of the lower finger lies also quite at the base, but the other is found exactly in the middle of the margin. The upper finger presents several granules, like in the first variety, three or four of which are a little more prominent than the others. One specimen differs from the three last described ones only by the absence of the basal tooth of the lower finger, and in the last specimen, finally, the teeth are entirely absent on both fingers. In this specimen the row of granules at the inner surface of the palm near the base of the fingers is not developed, in the other ones it is also less distinct than in the Mergui specimens.

The ambulatory legs are a little more slender than those of the type-specimens, the meropodites as well as the other joints appearing a little less enlarged.

The upper surface of the cephalothorax has a reddish gray ground-colour, and is marked with a few transverse purplish stripes. The larger hand is uniformly yellowish.

The occurrence of this variety at Amboina is to a certain degree remarkable, as the typical form occurs in New Caledonia and in the Mergui Archipelago.

22. *Metopograpsus messor* Forskål,
var. *gracilipes* de Man.

(Pl. 4, fig. 14).

Metopograpsus messor, Forskål; de Man, in: Journal Linnean Society of London, Vol. XXII, 1888, p. 144, Pl. IX, fig. 11.

One young male from the Pacific Ocean was purchased from the Museum Godeffroy. This specimen agrees with the typical representatives of this species from the Red Sea, but the propodites of the ambulatory legs are a little more slender. I cannot decide whether this difference is individual or characteristic of those representatives of *Metop. messor*, which inhabit the Pacific Ocean, because I have only one single specimen before me. But when this slight difference might indeed prove to be proper to the specimens of the Pacific Ocean, then I propose to designate this form as a variety under the name of *gracilipes*. The front is also a little narrower than in the type.

Dimensions:

♂

Distance between the external orbital angles .	20	mm.
Length of the cephalothorax	15	»
Breadth of the front	12 $\frac{2}{5}$	»

23. *Grapsus maculatus* Catesby.

Grapsus maculatus, Catesby: H. Milne Edwards, l. c. p. 167, Pl. VI, fig. 1.

This species is at present regarded to be one of the most widely distributed forms and to occur both in the Atlantic and in the Indopacific Regions. I must, however, remark that a young sterile female specimen from Djeddah, Red Sea, differs from female specimens of equal size from the West-Indies, which I have before me, by the postfrontal lobes, especially the internal ones, projecting somewhat less forward. The cephalothorax of this Djeddah specimen has a length of 33 mm.

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The Leyden Museum contains also an adult male of this species, from the Gulf of California. This specimen, the cephalothorax of which has a length of 63 mm., fully agrees with the specimens from the Bahama Islands and the Antilles, but the coloration is somewhat different. The upper surface of the cephalothorax has, especially on the gastric and branchial regions, a violet colour and the pale spots are much less numerous, more distinctly defined and not confluent. The anterior legs as well as the ambulatory ones are of a bright red, more or less mixed with yellow, especially on the posterior legs, and the pale spots are here also few in number and not confluent.

24. *Sesarma Büttikoferi* de Man.

Sesarma Büttikoferi, de Man, in: Notes from the Leyden Museum, Vol. V, 1883, p. 163.

A male and a female from the Junk River, Liberia.

The male specimen is of a somewhat larger size than the original type-specimen described by me in 1883. As to the female, I observe that the hands are comparatively much smaller than those of the male. In the adult male the palm projects considerably outward beyond the carpus, and the fingers measure only a third of the whole length of the hand, the palm being twice as long as the fingers. In the female, however, the fingers are still a little longer than the palm and the latter is not at all produced outward beyond the carpus; but the outer surface of the hands is flattened as in the male, and the other characters are also nearly the same.

Measurements:	♂	♀
Distance between the external orbital angles.	15 $\frac{1}{3}$ mm.	11 $\frac{2}{3}$ mm.
Length of the cephalothorax . . .	12 $\frac{1}{5}$ »	9 $\frac{1}{3}$ »
Breadth of the upper margin of the front	9 $\frac{1}{3}$ »	7 »
Length of the hands	15 »	6 $\frac{1}{4}$ »

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25. *Sesarma Germani* A. M. E.

Sesarma Germani, A. Milne Edwards, in: Nouv. Archives du Muséum, T. V, Bulletin, p. 28.

Sesarma Germani, de Man, in: Zoolog. Jahrb. herausgegeben von J. W. Spengel, Bd. II, 1887, p. 651.

This species is identical with *Sarmatium crassum* Dana; Milne Edwards informs me that he is of the same opinion. I was enabled to study a typical male specimen of *Ses. Germani* of the Paris Museum, and I cannot find any important difference between this form and Dana's species. Milne Edwards says that the antero-lateral margins present two teeth, including the external orbital angle: I observe, however, a small, though distinct, second emargination, so that the antero-lateral margins present three teeth. The second lobe is almost twice as long as the first, formed by the external orbital angle. These teeth or lobes are slightly rounded, and the third is very small and may easily be overlooked. The inferior margin of the front is slightly emarginate in the middle.

The internal angle of the carpopodite of the anterior legs is acute. This species, finally, at first sight may be recognized by the six or seven parallel, transverse and smooth, characteristic crests or ridges, with which the upper margin of the palm is ornamented.

It is to this species that I now refer, with some doubt however, a young female specimen from the Pacific Ocean because it presents some slight differences from the male. The antero-lateral margins present no trace of the second emargination behind the external orbital angles, and the transverse furrows on the upper margin of the palm, which are characteristic of the male, are only represented by a few transverse rows of impressed points.

Measurements of this specimen:

♀

Distance between the external orbital angles $8\frac{2}{5}$ mm.

Greatest width of the cephalothorax. . . . $11\frac{1}{4}$ »

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Length of the cephalothorax	$9\frac{2}{3}$ mm.
Breadth of the front	$4\frac{1}{2}$ »

Dana's specimen was collected on the Samoa Islands, that of Milne Edwards on Pulo-Condore.

26. *Sesarma oceanica* de Man.

Sesarma oceanica, de Man, in: Zoolog. Jahrb. von J. W. Spengel, Bd. IV, Abth. f. System. 1889, p. 429, Taf. X, fig. 9.

A male specimen collected at Tjibodas, in the interior of the Island of Java, and two young females without eggs from an unknown locality.

The male is larger than those of my original description (see the measurements). The small tubercles at the lower margin of the front are wanting in this specimen. The upper margin of the mobile finger is till near the extremity covered with small acute teeth with horny tips.

This species is most closely allied to *Ses. dentifrons* A. M. E. from Upolu. Prof. Milne Edwards sent me an unpublished drawing of this species, and this drawing presents a so striking resemblance with my *Ses. oceanica* that I suppose the two species to be identical. After having sent, however, the male from Tjibodas to Prof. Milne Edwards, this learned carcinologist wrote me that he still considers *Ses. dentifrons* to be a distinct species, distinguished by the frontal margin being armed with four or six small tuberculiform teeth. Unfortunately the single original specimen of *Ses. dentifrons* does not make part of the Paris collection, having belonged to the Museum Godeffroy in Hamburg, and I do not know where it is at present. I have, however, described very small frontal tubercles in the type-specimens of *Ses. oceanica*, and as these specimens had only a third of the size of *Ses. dentifrons*, it is very probable that the frontal teeth were still too little developed. In the very young female specimen of the Leyden Museum they are already distinctly visible.

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Dimensions of the male from Tjibodas :

♂

Distance between the external orbital angles	18 $\frac{2}{5}$ mm.
Greatest width of the cephalothorax . . .	22 $\frac{1}{3}$ »
Breadth of the upper margin of the front . .	8 $\frac{3}{4}$ »
Length of the cephalothorax	21 $\frac{1}{2}$ »

Sesarma oceanica de Man has been found on the Islands of Ponapé and of Java.

27. *Heterograpsus crenulatus* Guérin.

Heterograpsus crenulatus, Guérin; H. Milne Edwards, in: Annales des Sciences Naturelles, T. XX, 1853, p. 193.

A male from New Zealand was presented in 1878 by Milne Edwards to the Leyden Museum under the name of *Heterograpsus barbimanus* Heller. As Miers and Filhol have, however, pointed out, this species is identical with *Heterogr. crenulatus* Guérin.

Heterogr. crenulatus is closely allied to *Heterogr. penicillatus* de Haan (confer de Man, in: Notes from the Leyden Museum, T. I, p. 71). The differences are the following: The cephalothorax of the Japanese species is broader anteriorly, the distance between the external orbital angles being greater in proportion to the length of the cephalothorax than in *Heterogr. crenulatus*. The front of *Heterogr. penicillatus* is exactly half as broad as the greatest width of the cephalothorax and comparatively broader than in the other species. The upper surface of the cephalothorax of *Heterogr. penicillatus* is nearly smooth and only minutely punctate, showing only a few granules on the postfrontal lobes, on the protogastric regions on each side of the shallow bifurcated frontal furrow, and a few also on the antero-lateral parts of the upper surface. This fine granulation is much more distinct in *Heterogr. crenulatus*, in which the greatest part of the upper surface is covered with granules, the cardiac region only being smooth.

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The antero-lateral teeth present the same form and size in both species. The margins of these teeth, of the orbits and of the front are a little more coarsely granulated in *Heterogr. crenulatus* than in the other, and the posterior margin of the cephalothorax is a little broader than the anterior margin of the front, but in *Heterogr. penicillatus* the front is distinctly broader than the posterior margin.

The impressed line on the second joint of the external maxillipedes proceeds closer to the internal margin in the Japanese species than in the other, its distance from the internal margin being a fourth of the breadth of the joint in *Heterogr. penicillatus*, but two fifths of it in *Heterogr. crenulatus*, when measured in the middle of the joint. The external margin of the third joint appears more straight and less arcuate in *crenulatus* than in the other, and is also a little more distinctly emarginate at its posterior end than in *penicillatus*.

The carpopodite of the anterior legs of *Heterogr. penicillatus* is armed with an acute tooth at its inner angle, but only with a prominent granule in the other. The upper surface is a little more distinctly granulated and the antero-internal surface a little more hairy than in *Heterogr. penicillatus*.

The hands have quite the same form in both species; like the wrist they appear smooth for the naked eye, but the fine granulation which they present under a magnifying-glass, is somewhat more distinct in *Heterogr. crenulatus* than in the other. Nearly the whole inner surface of the palm and of the fingers of *Heterogr. crenulatus* is covered with hair, but these hairs do not occur on the outer side of the fingers. In *Heterogr. penicillatus*, on the contrary, the fingers are clothed at their bases with hair on the inner as well as on the outer surface, and the tuft of hair on the inner side occupies only a small part of the inner surface of the palm, extending neither to the upper nor to the under margin.

The ambulatory legs present about the same form in both species, but the meropodites of *Heterogr. penicillatus*

are armed at the distal end of the upper margin, with an acute tooth, which is not found in the other species. The ambulatory legs of *Heterogr. crenulatus* are very hairy, not only along the anterior margin of the meropodites, but also along the anterior and posterior margins of the following joints. The ambulatory legs of the Japanese species are described by de Haan as glabrous in the male. This is not quite exact. The meropodites are hairy along their anterior margin, but the following joints are clothed, especially along their margins, only with numerous small tufts of very short dark-coloured hairs, the long hairs of *Heterogr. crenulatus* are entirely wanting.

Heterogr. penicillatus is marked on the cephalothorax as well as on the legs with small round red spots.

This species inhabits Japan, and extends until Amoy and Hongkong, *Heterogr. crenulatus* inhabits the coasts of New Zealand.

I add the measurements of the two species:

penicillatus. crenulatus.

	♂	♂
Distance between the ext. orbit. angles	17 $\frac{1}{4}$ mm.	15 mm.
Greatest width of the cephalothorax.	20 $\frac{1}{2}$ »	19 $\frac{1}{3}$ »
Breadth of the anter. marg. of the front	9 $\frac{3}{4}$ »	7 $\frac{2}{3}$ »
Length of the cephalothorax . . .	17 $\frac{1}{2}$ »	17 »
Breadth of the posterior margin of the cephalothorax	8 $\frac{1}{4}$ »	8 »

These two species differ from *Heterogr. crassimanus* Dana from the Sandwich Islands, which may be identical with *Heterogr. maculatus* M. E., by the more hairy legs, especially by the hands which are clothed with hair at the base of the fingers.

Heterogr. nudus Dana from San Francisco is closely allied to, but may be distinguished from *Heterogr. penicillatus* by the almost glabrous ambulatory legs, which are less slender and the meropodites of which present no tooth at the distal end of their upper margin. It differs from *Heterogr. crenu-*

latus also by its almost glabrous ambulatory legs; the inner surface of the palm of the anterior legs of the male is almost entirely clothed with hair in *Heterogr. crenulatus*, whereas in *Heterogr. nudus* the base of the fingers only is hairy, as in *Heterogr. penicillatus*. The ambulatory legs, especially the dactylopodites, are likewise more slender in the species of Guérin, than in *Heterogr. nudus*, if Dana's figure is correct.

I must, finally, observe that Kingsley (Proc. Acad. Nat. Scienc. of Philadelphia, 1880, p. 208) is quite wrong in uniting *Heterogr. nudus* with *Heterogr. sanguineus* de Haan, for in this latter species the hands are quite naked, without a tuft of hair on the inner surface, the wrist of the anterior legs presents an acute tooth at the inner angle, and the meropodites of the ambulatory legs are armed with a sharp tooth at the distal end, whereas those of *Heterogr. nudus* appear to be unarmed.

Heterogr. maculatus M. E. may be identical with *Heterogr. sanguineus* de Haan. *Heterogr. crassimanus* Dana also may be identical with the species of the »Fauna japonica'', but the merus-joint of the outer foot-jaws appears more enlarged and more dilated externally, with a more convex outer margin in the species of Dana, and the penultimate joint of the abdomen in the male is shorter in proportion to its breadth. Moreover, in Dana's figure, the carpus of the anterior legs does not present the sharp tooth at the inner angle, which exists in *Heterogr. sanguineus*.

28. *Heterograpsus spinosus* M. E.

(Pl. 4, fig. 15).

Heterograpsus spinosus, H. Milne Edwards, in : Annales des Sciences Naturelles, T. XX, 1853, p. 194. — A. Milne Edwards, in : Journal des Museum Godeffroy, Heft IV, 1874, p. 6.

A young male and an ova-bearing female from Upolu. This rare species may be easily recognized by the characteristic shape of the cephalothorax. This latter is a little

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broader than long, its upper surface is very slightly convex transversely as well as in the antero-posterior direction, especially in the female. The regions are tolerably well indicated and defined by distinct, though shallow grooves. The upper surface is minutely granulated anteriorly and on the mesobranchial regions, for the rest smooth and somewhat finely punctate. The front is strongly deflexed, and the anterior margin appears nearly straight; the epibranchial (or internal post-frontal) lobes are separated from one another by the rather deep median furrow, which is bifurcated as usual. The hepatic region is somewhat concave. The orbits are large. The antero-lateral margins, which in the other species of this genus appear more or less convex, are, on the contrary, slightly concave in *Heterogr. spinosus*; they are armed moreover behind the acute and prominent external orbital angle with three subequal, somewhat spiniform and comparatively small teeth; the first tooth, formed by the external orbital angle, is as long as the three posterior teeth together. The cephalothorax has therefore its greatest breadth at the fourth antero-lateral teeth. The postero-lateral margins are nearly straight and slightly converge backwards. The external maxillipedes leave a small rhomboidal gape between them, about as wide as those of *Heterogr. sanguineus* de Haan and several other species. Kingsley in his »Analytical key to the genera of Grapsidae" (Proc. Acad. Nat. Scienc. of Philadelphia, 1880, p. 188) divides the genera according to the presence or absence of the rhomboidal gape between the external foot-jaws, and refers the genus *Heterograpsus* to that section in which the outer foot-jaws are not gaping. He is evidently wrong in doing so, and it would perhaps have been better to have made no use at all of this character. The external foot-jaws of *Heterogr. oregonensis* Dana leave no hiatus between them, and Dana, for that reason, brought this species to another genus (*Pseudograpsus*) and referred those

with gaping maxillipedes to the genus *Hemigrapsus*. I am also inclined to refer these forms to different genera.

The inferior margin of the orbits of the male is entire and appears only very minutely granulated when seen under a strong magnifying-glass.

The carpopodite of the anterior legs is rounded and unarmed at the internal angle. The hands are quite smooth, but the slightly gaping fingers are provided with a patch of hair externally as well as internally.

The ambulatory legs are rather slender. The meropodites are armed with an acute tooth at the distal end of their upper margin. The propodites and dactylopodites of the male are tomentose along their inferior margin; the toment has its greatest development on the propodites and dactylopodites of the first pair, and gradually diminishes on those of the other legs.

This species, on account of its more strongly deflexed front and slightly concave antero-lateral margins, is quite different in appearance from its congeners.

I give the measurements of the two quoted individuals and of a male type-specimen from Australia of the Paris Museum.

	1.	2.	3.
	♂	♂	♀
	mm.	mm.	mm.
Distance between the ext. orbit. angles .	$13\frac{2}{3}$	$10\frac{1}{2}$	$12\frac{1}{3}$
Greatest breadth of the cephalothorax .	$15\frac{3}{4}$	$11\frac{1}{2}$	14
Length of the cephalothorax	$13\frac{1}{4}$	$10\frac{1}{3}$	$11\frac{2}{3}$
Breadth of the front	$7\frac{2}{5}$	$5\frac{4}{5}$	$6\frac{3}{4}$

Nº. 1 is the original specimen of the Paris Museum, Nº. 2 and 3 are the Leyden specimens.

Heterograpsus spinosus, a rare species, has been recorded from Vanicoro and Australia.

29. *Calcinus intermedius* de Man.

Calcinus intermedius, de Man, in: Notes from the Leyden Museum, Vol. III, 1881, p. 102.

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I consider this species to be identical with *Calcinus latens* (Rand.) Dana, finding no difference of any importance between the original specimen of *intermedius* from Djeddah, Red Sea, and a specimen from Tahiti, which I formerly referred to Dana's species. The granules with which the fingers of the larger hand are covered, are more flattened and less prominent than in the Tahiti specimen, but this may perhaps be ascribed to the larger size of the Red Sea specimen, in which the granules are more worn off. This species may be distinguished both from *Calc. elegans* M. E. and *Calc. nitidus* Hell. by the quite different coloration, as well as by the lower margin of the left hand being sharp and granulate, and by the dactylopodites of the second and third pair of legs being more slender and almost as long, but not shorter than the propodites. The fingers of the larger hand are also but finely granulate and they are not provided with the larger tubercles which are characteristic of *Calc. elegans*.

This species may at first sight be recognized by the dark violet coloration of the basal half of the dactylopodites of the second and third pair of legs; these legs are clothed with some tufts of hair especially on the last joints.

Calcinus latens has been recorded by Richters from Mauritius, and by Dana from the Indian Archipelago, the Fiji- and the Sandwich Islands.

30. *Pseudosquilla oculata* Brullé.

Squilla oculata, Brullé, in: Webb et Berthelot, Iles Canaries, Zool. Crust. p. 18, fig. 3 (1836—44).

Pseudosquilla oculata, Miers, on the Squillidae, in: Annals and Magazine of Natural History for February 1880, p. 110, Pl. III, fig. 3 and 4.

The Leyden Museum received two specimens of this Atlantic species from the Samoa Islands.

Prof. Milne Edwards enabled me to compare them with a type-specimen of Brullé's *Squilla oculata* from the Cape Verd Islands, and I cannot find differences of any im-

portance between these specimens. I only observe that the eye-peduncles of the Samoa-specimens are a little more dilated at the distal end, and that the rostral plate is slightly more transverse and has the small median spinule comparatively a little longer than the specimen from the Cape Verd. The terminal joint of the antennular peduncle appears in the figure, published by Miers, to be about twice as long as the penultimate one; but in reality, in the Samoa-specimens, as well as in the Atlantic individual the terminal joint is only a little longer than the preceding one.

The larger specimen measures a little more than 5 centim. in length.

As we know, still another species of this genus appears as widely distributed, occurring both in the Pacific and Atlantic oceans, viz.: *Pseudosquilla ciliata* Miers, which I consider to be specifically distinct from *Pseudosquilla oculata* Brullé.

Middelburg, April 1890.

EXPLANATION OF THE PLATES.

PLATE 1.

- Fig. 1. *Actaeodes pubescens* M. E., outer view of the hand of the young male, $\times 3$.
 " 2. *Etisodes frontalis* Dana, adult male, $\times 2$; 2a, larger hand of the male, $\times 2$.
 " 3. *Epiranthus subcorrosus*, n. sp., female, $\times 2$.

PLATE 2.

- " 4. *Epiranthus frontalis* M. E., female from the Mergui Archipelago, $\times 2$.
 " 5. *Gelasimus vocans* M. E., larger hand of a male specimen from Atjeh, Sumatra, $\times 1\frac{1}{2}$; 5a, larger hand of the male from Samoa, which belongs to the variety *cultrimana* Ad. & White, $\times 1\frac{1}{2}$.
 " 6. *Gelasimus tetragonon* Herbst, adult male from the Samoa Islands, $\times 1\frac{1}{2}$.

PLATE 3.

- " 7. *Gelasimus arcuatus* de Haan, type-specimen from the Leyden Museum, front of a male, $\times 4$; 7a, larger hand of a male, similar to that figured by de Haan, $\times 1\frac{1}{2}$; 7b, a variety of the larger hand of a type-specimen from the Leyden Museum, $\times 1\frac{1}{2}$.
 " 8. *Gelasimus coarctatus* M. E., front and orbit of a young male from Ponaïé; 8a, larger hand of the same individual, $\times 1\frac{1}{2}$.
 " 9. *Gelasimus forcipatus* (Ad. & White) de Man, outer view of the larger hand of a male from Celebes, $\times 1\frac{1}{2}$.
 " 10. *Gelasimus acutus* Stimpson, front and orbit of a male specimen from the Mergui Islands, $\times 3$.

PLATE 4.

- " 11. *Gelasimus signatus* Hess, male from the eastern coast of Australia, $\times 1\frac{1}{2}$; 11a, front and orbit of the same, $\times 3$; 11b, outer view of the larger hand of the same individual, $\times 1\frac{1}{2}$; 11c, front of a male specimen from Batavia, belonging to the variety *angustifrons* de M., $\times 4$.
 " 12. *Gelasimus inversus* Hoffmann, outer view of the larger hand of a male type-specimen from Nossy-Faly, $\times 1\frac{1}{2}$.
 " 13. *Gelasimus triangularis* A. M. E., var. *variabilis* de Man, outer view of the larger hand of a male from Amboina, $\times 2$.
 " 14. *Metopograpsus messor* Forskål, var. *gracilipes* de Man, right leg of the penultimate pair of a male specimen from the Pacific Ocean, $\times 2$.
 " 15. *Heterograpsus spinosus* M. E., an ova-bearing female from Upolu, $\times 2$; 15a, outer view of the hand of the young male, $\times 4$.

NOTE II.

DESCRIPTION OF A NEW SPECIES OF FUSUS
FROM JAPAN.

BY

M. M. SCHEPMAN.

Fusus Sieboldi, n. sp.

Shell fusiform, white; whorls 8, slightly concave at the upper part, rather inflated and rounded beneath; nucleus smooth and semitransparent, each of the next whorls with about 10 costae, which become obsolete on the 6th and are entirely wanting on the ultimate and penultimate whorl. The entire surface of the shell, with exception of the nucleus, is covered with close set lines of growth and spiral lirae, of which latter there are 13 on the penultimate whorl, besides a few much finer intermediate ones, which alternate rather regularly with the coarser lirae and are more clearly seen on the ultimate whorl; the lirae are slightly granulate. Last whorl regularly contracted to the base and produced into a moderately long canal, which is slightly curved. Aperture oval, columella smooth, slightly excavated, with a thin white callosity; interior of the aperture smooth and white.

Length 40, diam. 16 mill. — Length of the aperture, including the canal, 24, width $7\frac{1}{2}$ mill.

Hab. Japan, collected by von Siebold (Leyden Museum).

Rhoon near Rotterdam, November 1890.

NOTE III.

CERCOPITHECUS WOLFI, N. SP.

BY

A. B. MEYER.

In the Zoological Garden of Dresden, since the year 1887, there has been a living specimen of a *Cercopithecus*, brought hither from Central West-Africa by Dr. Ludwig Wolf. This specimen so obviously represents an undescribed species of monkey, that I need not hesitate any longer in describing it shortly, though this can be done but imperfectly during its life-time. The following remarks, therefore, must be looked upon as preliminary only, to be completed after the animal's death.

This new species belongs to the *Mona*-group, which was divided by Prof. Schlegel (Cat. Mus. Pays-Bas, Singes, 1876, p. 80) into those with white over the root of the tail and those without it.

The first division is represented solely by *C. mona* Erxl.; the second is composed of *C. Campbelli* Wat., *C. pogonias* Benn. (*Erxlebenii* Dahlb. & Puch.), and *C. erythrogaster* Gray, all occurring in Western Africa. To this latter group *C. Wolfi* belongs, though it may at a glance be distinguished from all other species by its ferruginous hind legs and by the light patches on inside of thighs and arms. Hereby it would be sufficiently characterized, as this, as far as I am aware, does not occur in any known species. I give, however, as detailed a description as is possible while the animal is living.

Above bluish gray, on sides of body darker, middle of back shading into yellowish brown. Cap brownish gray. An upraised yellowish white semicircular frontlet reaching

to the ears, bordered in front by a narrower black one produced very narrowly over the ears, becoming broader on sides of neck and dissolving into the black of outside of arms. Front part of snout dull orange flesh colour. Nose and other naked parts of face blackish gray or bluish. Ear tufts of a dark orange colour. The long hairs of the cheeks citron yellow, vermiculated with brownish and produced into long yellowish white whiskers. Throat and breast yellowish white, the latter in the middle with an elongated pure white patch. A stripe along the sides of the body saffron yellow. Middle of belly lighter. Arms outside deep black, the hairs being more or less tipped with yellowish brown, inside yellowish white with an outer edging of saffron yellow. Legs outside orange ferruginous, most vivid on tibia, on upper thighs with darker tips to the hairs; inside lighter and on midst of upper thighs white (whether naked skin or hairs could not be decided). Tail above mousegray, distal third darker, more bluish gray, underneath whitish. Iris reddish brown.

Length of body	circa 50 cm.
» » tail	» 68 »
Height of body (hindlegs)	» 35 »

I name this beautiful species *Cercopithecus Wolfi*, in honour of its discoverer, whose early death, which took place in Africa the 26th of June 1889, the scientific world has to deplore. The decease of Dr. Wolf prevents me from ascertaining the exact locality, where this specimen was procured.

Royal Zoological Museum, Dresden,
December 15, 1890.

NOTE IV.

EINIGES ÜBER DIE MYOXIDAE ODER SCHLÄFER.

VON

Dr. C. L. REUVENS.

December 1890.

(Tafel 5).

Im Nachfolgenden habe ich mich bemüht, eine Uebersicht meiner Abhandlung »Die Myoxidae oder Schläfer. Ein Beitrag zur Osteologie und Systematik der Nagethiere, mit 5 Tafeln. Verlag von Trap, Leiden, 1890" zu geben. Dass dieses Excerpt, denn mehr ist es nicht, in der Zeitschrift des Leidener Museums seinen Platz findet, ist mir deshalb sehr lieb, weil die ganze Abhandlung im hiesigen Museum ausgearbeitet ist.

Im System sind die Schläfer bei den Nagethieren untergebracht, wo sie das eine Mal zu den Eichhörnchen, das andere Mal zu den Mäusen gerechnet werden. Waterhouse (Observations on the Rodentia. Charlesw. Mag. Nat. Hist. New Ser. Vol. III. p.p. 91, 184. 1839) spricht zum ersten Male von einer Familie der Myoxidae. Ihm folgt später Wagner (Gruppierung der Gattungen der Nager in natürlichen Familien. Wiegmann's Arch. f. Naturgesch. T. I. 1841), und Brandt, Lilljeborg und Alston beweisen durch ihre Untersuchungen, dass die Myoxidae mittels gut umschriebener Schädelmerkmale eine besondere Familie bilden. Da Alston's Eintheilung der Nagethiere als die gegenwärtig beste angenommen wird, so werden die Schläfer jetzt als besondere Familie zwischen die der Eichhörnchen und Mäuse gestellt.

Die Merkmale, auf welche sich diese Eintheilung basirt,

Notes from the Leyden Museum, Vol. XIII.

sind bis jetzt hauptsächlich osteologischer Natur. Wohl ist von den europäischen Schläfern, und nach F. Cuvier (Description des caractères propres aux genres Graphiure et Cercomys. Ann. du Musée d'Hist. Nat. T. I, p.p. 441—452. 1832) auch von *Graph. capensis* constatirt, dass ihnen der Blinddarm fehle; dies Merkmal wird wahrscheinlich auch wohl bei den übrigen Repräsentanten der Familie vorkommen und würde diese letzte hierdurch allein schon scharf von den übrigen Nagern, so weit sich nämlich die Untersuchungen hierüber bis jetzt ausstrecken, abgegrenzt sein.

Beschreibt F. Cuvier im Jahre 1821 die Zähne von *M. glis* und im Jahre 1832 ausführlich die Schädelmerkmale von *Graph. capensis*, so giebt G. Cuvier in seiner Arbeit über die fossilen Skeletreste (1821—24) schon die Unterschiede im Gebiss bei *M. glis*, *E. quercinus* und *Musc. avellanarius* an. Waterhouse macht in seiner vorher erwähnten Arbeit aufmerksam auf das Fehlen des Processus postorbitalis und auf das grössere Foramen infraorbitale, Merkmale, wodurch *Myoxus* von *Sciurus* gut zu unterscheiden sei. Sich auf Differenzen am Schädel, hauptsächlich den Zähnen, basirend, bestimmt Wagner in 1841, dass die Familie der *Myoxina*, wie er die Schläfer nennt, ein Genus *Myoxus* und vier Subgenera, nämlich *Graphiurus*, *Eliomys*, *Glis* und *Muscardinus* besitze (statt *Glis* hat sich später *Myoxus* auch als Untergattungsname eingebürgert). War bis jetzt nur ein Vertreter jedes Subgenus bekannt, so fügt Wagner diesmal einen neuen, *E. melanurus* dazu, und im Jahre 1848 einen zweiten: *E. orobinus*. Mit dem Schädel unbekannt, wusste Wagner nicht, wo er den *M. nitedula* unterbringen sollte; bis heute ist diese Art von allen Autoren, mit Ausnahme von Trouessart (Catalogue des Mammifères. 1887) und Jentink (Catalogue du Museum d'Hist. Nat. des Pays-Bas. T. IX, XII.) welche sie zu *Eliomys* rechnen, zu *M. glis* gesetzt. Meiner Meinung nach kann sie diesen Platz behalten, doch könnte sie als Uebergang von *Myoxus* zu *Eliomys* betrachtet werden.

Osteologische Merkmale über seinen *M. elegans* giebt

Notes from the Leyden Museum, Vol. XIII.

Temminck in seiner Beschreibung vom Jahre 1851 nicht und sagt er auch nicht ob er *Myoxus* als Allgemeinnamen zur Andeutung der Verwandtschaft oder als Beziehung zum Genus oder Subgenus nimmt.

War seit dem Jahre 1820 schon eine Schläferart aus Afrika bekannt, welcher Desmarest den Namen *M. murinus* giebt, erst im Jahre 1852 beschreibt Peters (Reise nach Mossambique) den Schädel dieser Species und stellt sie zu *Eliomys*. Asien und Europa lieferten bis heute keine neuen Schläferarten mehr, Afrika jedoch bot ein fruchtbareres Jagdgebiet, und danken wir diesem Continent seit dem Jahre 1883 fünf neue Schläfer, nämlich: *Graphiurus hueti* aus Senegambien (de Rochebrune, Faune de la Sénégambie. 1883), *Bifa lerotina* aus Algier (Lataste, Description d'un nouveau rongeur de la Famille des Myoxides. 1885), *Eliomys nagtglasii* und *crassicaudatus* aus Liberia (Jentink, Zoological Researches in Liberia. 1887), und *Eliomys kelleni* aus Damara-land (Reuvens, Die Myoxidae oder Schläfer. 1890). Im Ganzen sind also 13 Species, vertheilt in 4 Subgenera zu einem Genus gehörend, bekannt:

<i>Eliomys</i>	<i>quercinus</i>	(L.).
»	<i>nagtglasii</i>	(Jent.).
»	<i>kelleni</i>	Reuv.
»	<i>crassicaudatus</i>	(Jent.).
»	<i>murinus</i>	(Desm.).
»	<i>melanurus</i>	Wagn.
»	<i>orobinus</i>	Wagn.
<i>Graphiurus</i>	<i>capensis</i>	Cuv.
»	<i>hueti</i>	Roch.
<i>Myoxus</i>	<i>nitedula</i>	Pall.
»	<i>glis</i>	(L.).
»	<i>elegans</i>	Temm.
<i>Muscardinus</i>	<i>avellanarius</i>	(L.).

Von diesen sind *E. orobinus* und *Graph. hueti* mir nur nach der Beschreibung bekannt, von allen anderen habe ich entweder die Typen oder doch mehrere Repräsentanten gesehen. Da ich hier natürlich, des beschränkten Raumes

wegen, nicht weit ausschweifen kann, so verweise ich für die allgemeinen Charactere, sowohl äusserliche als osteologische, nach meiner oben citirten Monographie, doch habe ich hier von *E. kelleni* eine Abbildung (Taf. 5) beigelegt und findet man am Ende dieser Abhandlung eine kurze Beschreibung dieser Art. Bei dieser Arbeit kommt es mir hauptsächlich darauf an, die geographische Verbreitung anzugeben. Deshalb folgt hier ein Verzeichniss aller von mir gesehenen Individuen, geordnet nach den Museen in denen sie sich befinden, und mit Angabe ihrer Fundorte; man hat dann sogleich ein Uebersicht des Materials.

Berlin.

Da ich selbst nicht in Berlin war, stand mir nur eine Liste der anwesenden Exemplare zur Verfügung; es zeigt sich daraus folgende Anzahl:

<i>E. quercinus</i>	(L.) 6 (2 Spir., 2 Ausg., 1 Sk., 1 Sch.) ¹).
<i>E. nagtglasii</i>	(Jent.) 1 (Ausg.).
<i>E. murinus</i>	(Desm.) 6 (1 Spir., 2 Ausg., 1 Sk., 2 Sch.).
<i>E. melanurus</i>	Wagn. 1 (Ausg.).
<i>Gr. capensis</i>	Cuv. 1 (Ausg.).
<i>M. nitedula</i>	Pall. 3 (1 Spir., 1 Ausg., 1 Sch.).
<i>M. glis</i>	(L.) 4 (2 Ausg., 1 Sk., 1 Sch.).
<i>M. elegans</i>	Temm. 2 (1 Spir., 1 Sch.).
<i>Musc. arellanarius</i>	(L.) 4 (1 Spir., 1 Ausg., 1 Sk., 1 Sch.).

Braunschweig.

E. quercinus (L.) 12 (6 Spir., 3 Ausg., 3 Sch.)²). Von diesen kommen 5 aus dem Harz, 1 vom St. Gotthardt, 1 von Chamouny; 5 sind ohne Ortsangabe.

M. nitedula Pall. 14 (7 Ausg., 7 Sch.). Es stammen 2 Ex. von der Wolga (H. Möschler), 2 aus Sarepta, 2 aus der Dobrudscha, 1 vom Altaï; die Schädel gehören zu den Bälgen.

M. glis (L.) 19 (8 Spir., 7 Ausg., 2 Sk., 2 Sch.). 10 Exemplare aus der Nähe von Braunschweig, 4 aus Ander-

1) Spir. = auf Spiritus, Ausg. = Balg oder ausgestopft, Sk. = Skelet, Sch. = Schädel.

2) Die 3 Schädel sind leider in meiner Abhandlung anzugeben vergessen.

matt (N. Donazian), 1 aus der Lombardei; 4 sind ohne Ortsangabe.

Musc. avellanarius (L.) 11 (8 Spir., 2 Ausg., 1 Sch.). Von diesen kommen 3 aus der Lombardei, 3 aus der Nähe von Braunschweig, 1 von Chamouny, 1 aus der Schweiz (H. Möschler); 3 ohne Fundort.

Darmstadt.

E. quercinus (L.) 1 (Ausg.). Ortsangabe: Deutschland.

M. glis (L.) 4 (Ausg.). Von diesen kommt einer aus Hessen und 2 aus der Nähe von Darmstadt; 2 haben als Localitätsangabe »Deutschland.“

Dresden.

E. quercinus (L.) 6 (2 Spir., 4 Ausg.). Von diesen stammen 4 aus Sachsen; 2 ohne Ortsangabe.

M. glis (L.) 8 (6 Ausg., 1 Sk., 1 Sch.). Nur eines hat eine bestimmte Angabe des Fundortes, nämlich Hohenleipa in Böhmen.

Musc. avellanarius (L.) 1 (Spir.). Ohne Ortsangabe.

Erlangen.

E. quercinus (L.) 1 (Ausg.). Aus der Nähe von Erlangen.

M. nitedula Pall. 1 (Ausg.). Ohne Ortsangabe. Ist sehr wahrscheinlich der Typus von *M. dryas* Schreb.

M. glis (L.) 3 (Ausg.). Aus der Nähe von Erlangen.

Musc. avellanarius (L.) 6 (3 Ausg., 3 Sch.). Drei sind aus der Nähe von Erlangen, die übrigen haben keine Ortsangabe.

Frankfurt.

E. quercinus (L.) 4 (3 Ausg., 1 Sk.). Alle aus der Nähe von Frankfurt.

E. murinus (Desm.) 3 (2 Ausg., 1 Sch.). Von diesen hat das Exemplar wozu der Schädel gehört, folgende Beischrift: »S. Afrika. Von H. Verreaux ertauscht in 1837. Typus »von *M. cineraceus* Rüpp.“; das andere kommt vom Cap (Dr. Friedleben, 1848).

M. glis (L.) 2 (Ausg.). Das eine aus dem Odenwald, das andere aus der Schweiz (Comersee).

Musc. avellanarius (L.) 3 (Ausg.). Alle aus dem Taunus. Leiden.

E. quercinus (L.) 11 (2 Spir., 6 Ausg., 3 Sch.). Von diesen stammen 2 aus Deutschland (Heidelberg), 2 aus Frankreich (Champagne), 1 vom St. Gotthardt (aus den Sammlungen von Blasius), 1 aus Russland (von Brandt), 1 aus Süd Europa, die übrigen haben die Angabe »Europa».

E. nagtglasii (Jent.) 7 (4 Spir., 2 Ausg., 1 Sch.). Von diesen kommen 2 von der Goldküste (von Nagtglas gesammelt), und hierzu gehört auch der Schädel; 3 kommen aus Liberia (Hill-Town am Du Queah River, Farmington River; gesammelt von Büttikofer und Stampfli). Obengenannte Exemplare haben Dr. Jentink zur Beschreibung der Art gedient, sind also die Typen. In 1888 ist noch ein Exemplar von der Goldküste stammend, dazu gekommen.

E. kelleni Reuv. 1 (Spir.). Dies Exemplar, der Typus der Art, hat v. d. Kellen in S. W. Afrika (Damara-land) gesammelt.

E. crassicaudatus (Jent.) 1 (Spir.). Von Büttikofer in Liberia (Hill-Town am Du Queah River) gesammelt; Typus der Art.

E. murinus (Desm.) 6 (3 Ausg., 1 Sk., 2 Sch.). Ein Exemplar (wozu einer der Schädel gehört) ist von Pel an der Goldküste (Dabocrom) gesammelt, und von Temminck in »Esquisses Zoologiques» beschrieben; ein Exemplar ist von Brehm in S. Afrika (Algoa-Bai) gesammelt, 2 andere stammen vom Cap, und das letzte ist von Peters' Reise in Mossambique (Tette).

Graph. capensis Cuv. 3 (2 Ausg., 1 Sch.). Diese stammen alle vom Cap; das eine der ausgestopften Exemplare (wozu der Schädel gehört) ist von v. Horstock mitgebracht.

M. nitedula Pall. 2 (1 Ausg., 1 Sch.). Das eine Exemplar stammt vom Caucasus, das andere ist ohne Ortsangabe.

M. glis (L.) 6 (1 Spir., 3 Ausg., 1 Sk., 1 Sch.). Von diesen kommt 1 aus Livorno (von Cantraine gesammelt),

1 aus Croatien (aus den Sammlungen von Blasius), 1 hat die Angabe »Europa'', 1 (wozu der Schädel gehört) ist ohne Andeutung des Fundortes, das Skelet (erst seit kurzem im Museum) stammt aus Böhmen.

M. elegans Temm. 5 (3 Ausg., 2 Sch.). Diese Exemplare, die Typen der Art, sind von Bürger in Japan gesammelt und von Temminck in der »Fauna Japonica'' beschrieben.

Musc. avellanarius (L.) 10 (1 Spir., 5 Ausg., 1 Sk., 3 Sch.). Von diesen kommt 1 aus Sachsen, 1 aus Böhmen; 4 kommen aus Ungarn; 2 haben die Angabe »Europa, Deutschland'', 1 Exempl. ist von Blasius bei Rome (Tivoli) gesammelt und 1 ist ohne Angabe des Fundortes.

London.

E. quercinus (L.) 17 (5 Spir., 7 Ausg., 2 Sk., 3 Sch.). Von diesen kommen 3 aus S. Deutschland (Dr. Günther), 2 aus Frankreich (Dr. Gray und Danford), 1 aus der Schweiz (Alston), 1 aus der Nähe von Lissabon (Friend) und 4 aus S. Europa; 3 sind von Fraser in N. Afrika (Tangiers und Karouana) gesammelt, und bei 3 ist der Fundort nicht angegeben.

E. nagtglasii (Jent.) 6 (4 Spir., 2 Sch.). Alle in W. Afrika (Aschanti) gesammelt.

E. crassicaudatus (Jent.) 1 (Spir.). Von Burton in Fernando Po gesammelt.

E. murinus (Desm.) 10 (3 Spir., 6 Ausg., 1 Sch.). Von diesen stammt 1 vom Kilima-ndjaro (Jackson), 1 von Zanzibar (Dr. Kirk); 2 kommen von Port-Natal, 3 sind von Gurney, Rock und Smith in S. Afrika gesammelt; 1 stammt aus dem Piriwalde (Lt Trevelyan), 1 vom Senegal und 1 ist ohne Angabe des Fundortes.

Graph. capensis Cuv. 3 (2 Ausg., 1 Sk.). Alle drei sind in S. Afrika gesammelt; einer der Bälge ist der Typus von *M. elegans* Og.

M. nitedula Pall. 5 (2 Spir., 3 Ausg.). Von diesen sind 2 aus der Nähe von Belgrad (Coll. Robson), 1 stammt aus Georgien (gesammelt von Mlokosievitsch), 1 aus O. Persien (gesammelt von Blanford und Typus seines *M. pictus*),

1 aus Central Klein-Asien (Issa Fakyr) von Danford's Reise.

M. glis (L.) 12 (3 Spir., 6 Ausg., 3 Sch.). Von diesen kommen 7 Exemplare aus Frankreich, 1 aus der Schweiz, 3 aus Italien (Begato, in der Nähe von Genua), 1 ist ohne Ortsangabe.

M. elegans Temm. 2 (Spir.). Beide Exemplare sind von Pryer in Japan (Fuysan) gesammelt; nach einem (♂. 1880²⁰/₃ N^o. 28) hat O. Thomas seinen *M. lasiotis* bestimmt.

Musc. avellanarius (L.) 11 (5 Ausg., 1 Sk., 5 Sch.). Von diesen kommen 2 aus England, 2 aus Frankreich, 1 ist ohne Ortsangabe.

Mainz.

E. quercinus (L.) 1 (Ausg.). Fundort: Deutschland.

M. glis (L.) 3 (Ausg.). Fundort: Deutschland.

Musc. avellanarius (L.) 3 (Ausg.). Fundort: N. Europa.

München.

E. quercinus (L.) 5 (2 Ausg., 1 Sk., 2 Sch.). Von diesen kommt 1 aus Baiern, 1 aus der Schweiz, 1, wozu einer der Schädel, aus Portugal (von Dr. Erdl als »var. lusitanica'' bezeichnet), 1 hat keine Angabe des Fundortes.

E. murinus (Desm.) 4 (2 Ausg., 2 Sch.). Alle 4 stammen aus S. Afrika.

E. melanurus Wagn. 3 (2 Ausg., 1 Sch.). Diese typischen Exemplare sind von v. Schubert auf dem Sinaï gesammelt.

M. nitelula Pall. 2 (1 Ausg., 1 Sk.). Das eine Exemplar stammt aus Georgien, das andere aus dem Caucasus (Coll. Hohenacker).

M. glis (L.) 13 (9 Ausg., 1 Sk., 3 Sch.). Von diesen kommen 6 aus Baiern (Franken, Eichstädt), 1 aus der Schweiz, 1 hat die Angabe »Deutschland'', die übrigen sind ohne Angabe.

Musc. avellanarius (L.) 6 (4 Ausg., 2 Sch.). Nur bei einem Exemplare ist der Fundort, Franken, angegeben.

Paris.

E. quercinus (L.) 19 (8 Ausg., 3 Sk., 8 Sch.). Fünf dieser stammen aus Frankreich, 3 aus Algerien (unter diesen ist

der Typus von *E. mumbyanus* Pomel); die übrigen haben keine Angabe des Fundortes.

E. murinus (Desm.) 11 (8 Ausg., 3 Sch.). Von diesen Exemplaren stammen 5 vom Senegal, unter welchen der Typus von *M. coupei* Cuv. sammt dessen Schädel (mit Beischrift »crâne de l'individu dans »Mammifères"), während die anderen von Delcombre, Kiener und Prevost gesammelt sind; 4 Exemplaren stammen vom Cap, nämlich die beiden Typen von Desmarest und 2 andere, welche Verreaux in 1837 gesammelt hat und die übrigen 2 sind von Raffray und Schimba von der Ostküste Afrika's mitgebracht.

Graph. capensis Cuv. 1 (Sch.). Dieser Schädel ist von F. Cuvier abgebildet und beschrieben in »Annales du Musée d'Hist. Nat. T. I, pp. 441—452, Tab. 16, 17."

M. nitedula Pall. 3 (Ausg.). Diese 3 Exemplare (♂, ♀, juv.) sind von Tyzenhauz in Lithauen gesammelt. (Sehe seine Beschreibung und Abbildung in »Revue et Magasin de Zoologie, T. II, pp. 359—369").

M. glis (L.) 14 (11 Ausg., 1 Sk., 2 Sch.). Von diesen kommen 7 aus Frankreich (Doubs, Dyon, Lorraine), 3 aus den Pyrenäen, 1 aus Algerien; die übrigen haben keine Angabe des Fundortes.

M. elegans (Temm.) 1 (Ausg.). Dieses Exemplar stammt aus Japan und ist im Jahre 1844 von Temminck aus Leiden als Tausch-exemplar nach Paris abgegeben.

Musc. avellanarius (L.) 8 (7 Ausg., 1 Sk.). Von diesen kommen 3 aus Frankreich, 1 aus Savoiën, 2 aus Italien, 1 von Sicilien; 1 hat keine Ortsangabe.

Stuttgart.

E. quercinus (L.) 12 (3 Spir., 5 Ausg., 4 Sch.). Alle diese Exemplare stammen aus Württemberg (Schramberg, Ratzenried, Tuttlingen, Mossingen, Hirschau, Urspring).

E. nagtglasii (Jent.) 1 (Spir.). Stammt von der Goldküste (Aburi).

E. murinus (Desm.) 5 (3 Ausg., 1 Sk., 1 Sch.). Von diesen stammen 1 vom Senegal, 1 aus Sierra Leone, 3 aus Natal.

M. nitedula Pall. 3 (1 Ausg., 1 Sk., 1 Sch.). Von v. Heuglin in Klein-Asien gesammelt.

M. glis (L.) 38 (7 Spir., 17 Ausg., 3 Sk., 11 Sch.). Alle in Württemberg (Steinheim, Stuttgart, Hohlenstein, Metzingen, Warthausen, Auendorf, Arthshofen, Leonberg) gesammelt.

Musc. avellanarius (L.) 9 (Spir.). Von diesen stammt 1 aus England, die übrigen kommen alle aus Württemberg (Altenstadt, Dietenheim, Zwiefalten, Steinheim, Blaubeuren).

Eliomys kelleni Reuvens.

Beschreibung des typischen Exemplares, eines erwachsenen Weibchens.

Taf. 5.

Aeussere Charactere.

Dichter, weicher Pelz. Die Haare sind sowohl auf der Ober- als auf der Unterseite des Körpers auf ihrer Basis- hälfte dunkelgrau. Auf der Oberseite jedoch haben sie nach der Spitze hin einen bräunlich weissen Ring, während die Spitze selbst dunkelbraun ist. Dies giebt dem Thiere ein eigenthümliches, mäusefarbiges Ansehen. Auf der Unterseite und den Wangen bis zum Ohre ist die Spitze jedes Haares weiss. Die Schnauze ist heller als der Hinterkopf. Von den Bartborsten ab bis zum Auge und um dasselbe herum zieht sich ein dunkler Streif. Das Ohr ist breit, abgerundet und deutlich aus dem Pelze hervortretend; es ist von aussen ganz und von innen auf der Endhälfte mit feinen, dunklen, am Rande weiss-spitzigen Härchen besetzt. Der Schwanz ist auf dem ersten Drittel sehr kurz behaart, nach dem Ende hin jedoch allmählig länger; die Unterseite ist abgeplattet und in der Mitte viel kürzer behaart als auf den Seiten, die Behaarung ist daher etwas zweizeilig. Die Haare des Schwanzes sind an dessen Basis bräunlich grau mit weisser Spitze; das Weiss nimmt nach hinten mehr und mehr zu, so dass der Schwanz ein weisses Ende hat; die Unterseite ist heller als die Oberseite. Die Füsse sind weiss.

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Körpermaasse:

Länge von der Nase bis zur Schwanzbasis	64 mM.
» des Schwanzkörpers	67 »
» der Haare am Schwanzende	19 »
» des Hinterfusses mit Nagel des Mittelfingers	15.4 »
» des Ohres auf der Innenseite	11 »
» der Bartborsten	23 »

Diese Maasse sind mit dem Zirkel nach den typischen Exemplare (in Spiritus) genommen.

Osteologische Charactere.

Ueber den Schädel, der aus dem Spiritus-exemplare heraus präparirt ist, ist Folgendes zu bemerken. Die Nasenbeine reichen ein gutes Stück über den Processus zygomaticus hinaus. Die Aeste des Processus, von welchen der obere sich unter einem schiefen Winkel an den Oberkiefer anschliesst, sind kurz und schmal; das zwischen ihnen liegende Foramen infraorbitale ist schmal, fast doppelt so hoch als breit und in der Mitte am breitesten. Der untere Ast liegt mehr nach hinten als der obere, und ist viel dicker, etwas dreieckig im Durchschnitte. Der Gaumenbogen reicht ein wenig über die Mitte des letzten Backenzahnes hinaus. Der absteigende Ast des Unterkiefers hat kein Foramen.

So weit dies von aussen her zu sehen ist, zeigt sich dass die Alveolen der oberen Schneidezähne bis zum unteren Aste des Processus zygomaticus sich erstrecken; im Unterkiefer laufen sie bis zur Basis des Gelenkfortsatzes. Die Kronen der Backenzähne, welche auch nicht die geringste Abnutzung zeigen, haben einen, an allen Seiten erhöhten Rand, doch sind Aussen- und Innenrand höher als Vorder- und Hinterrand. Die Backenzahnreihe des Oberkiefers bleibt ein wenig hinter dem Processus zygomaticus zurück.

Oberkiefer. Der Prämolare, der kleinste, ist stark von vorn nach hinten zusammengedrückt und von aussen und vorn nach innen und hinten gerichtet; die beiden ersten Molare sind viereckig, jedoch von innen etwas kürzer als von aussen, der dritte Molar ist deutlich trapezförmig.

Alle vier Backenzähne zeigen auf der Aussenseite, in der Mitte, eine sehr deutliche Einsenkung, wodurch zwei Höcker entstehen; die drei Molare haben nach vorn noch eine zweite, sehr schwache Einsenkung. Die Kauflächen zeigen beim Prämolare zwei, von den Höckern nach der Innenseite durchgehende Querleisten; bei den drei Molaren ebenfalls zwei solche, zwischen welche sich beim ersten eine, beim zweiten und dritten zwei kürzere von aussen her einschieben.

Unterkiefer. Der Prämolare ist dreieckig mit nach vorn gerichteter Spitze; die drei Molare sind viereckig. Nur der letzte Molare zeigt auf der Aussenseite eine deutliche Einsenkung. Der Prämolare hat eine durchgehende, und nach vorn noch die Spur einer sehr undeutlichen Querleiste. Die drei Molare haben je zwei durchgehende Querleisten.

Von den Alveolen der Backenzähne ist noch nichts mit zu theilen.

Schädelmaasse:

Foramen occipitale bis Nasenbein.	15	mM.
Nasenbeine	8.8	»
Backenzähne bis Nagezähne.	5	»
Obere Backenzahnreihe	3.1	»
Untere »	3	»
Foramen occipitale bis Nagezähne.	17.8	»
Grösste Breite bei den Jochbogen.	12.4	»

Verbreitung. Diese Art ist bis jetzt nur aus Süd West Afrika (Damara-land) bekannt.

NOTE V.

DESCRIPTIONS OF EARTHWORMS.

BY

Dr. R. HORST.

VI.

On *Anteus gigas* Perrier.

(Plate 6).

Last year our Museum received a very large earthworm, collected in Brazil by Mr. H. du Dréneuf. I believe the specimen must be identified with *Anteus gigas*, though it does not agree in all its characters with the description given by Perrier of this species ¹⁾. This description was based upon two specimens, one from Cayenne, the other from an unknown locality. Although our worm is not in a very good state of preservation, so that some interesting points of its organisation remained unknown to me, my examination has enabled me to add something to our rather scanty knowledge of this species, and to come to a certain conclusion about the question of its supposed identity with *Microchaeta rappi*.

Vaillant ²⁾ pointed out that, according to Perrier's description, *Anteus gigas* agrees in many respects, i. e. the arrangement of the setae, the indistinctness of the clitellum, the thick anterior septa, the shape of the nephridia,

1) Nouv. Archives du Muséum d'hist. natur de Paris, T. VIII, 1872, p. 49, pl. 1, fig. 13 and 14.

2) Suites à Buffon, Annelés, 1889 (quoted after Benham).

with *Microchaeta rappi* from the Cape, afterwards described by Beddard ¹⁾ and Benham ²⁾. Though Benham seems to be disposed to join Vaillant's suggestion, he has ranged in his Classification of Earthworms ³⁾ the genus *Anteus* among the Lumbricidae incertae sedis and concludes his description of this worm with the remark: »it would be exceedingly interesting to investigate more fully the anatomy of *Anteus*, for its locality, Cayenne, is so far removed from the home of *Microchaeta* in South Africa, that it seems scarcely credible that the two are identical."

Our specimen is broken up in two pieces, measuring together 86 cm.; the number of its segments amounts to about 425. Its colour is bluish green, darker at the dorsal side, with a brownish tint on the clitellum. The prostomium is a quadrangular lobe, not embedded in the buccal segment. The two anterior segments are narrow, whilst the eight succeeding ones have about a double longitudinal diameter.

The clitellum commences with the 14th or 15th segment and extends over nineteen segments. Segment 15—28 have a glandular appearance and are separated by obvious intersegmental grooves; on segment 22—27 the edges of the ventral side are thickened and surround a shallow area. Perrier in his specimens observed an obvious glandular modification on the segments 13—29, though he found in segment 8 the epidermis already somewhat thickened and modified; in segment 18—29 there was a projecting ridge on each side of the ventral surface.

The setae (fig. 2) are arranged in four couples; on the 13th segment those of the ventral couples (1 and 2) become separated from each other, and in the middle of the clitellum the distance between them is half as great as the distance between the internal ventral setae of both

1) Transactions of the Zoological Society, Vol. XII, 1886, pl. XIV and XV.

2) Quarterly Journal of Microsc. Science, Vol. XXVI, p. 267, pl. XV, XVI and XVI bis.

3) loc. cit. Vol. XXXI, p. 265.

sides (1 and 1). In the segments behind the clitellum the setae of each ventral couple become a little closer to each other, whilst the median distance between the internal ventral bristles is somewhat greater. The distance between a ventral and dorsal couple measures about thrice the distance between 1 and 2; the setae of the dorsal couple are placed somewhat closer to one another than those of the ventral couple. In most of the segments of the clitellum and in those in front of it dorsal bristles could not be recognized; in the four anterior segments the ventral setae were also invisible. The setae are not very long, 0.80 mm.; they have the ordinary shape, but are ornamented near their distal ends with several rows of crescent-shaped ridges (fig. 4, *a*). These ridges are much more marked in the clitellar setae (fig. 4, *b*), which are very different in shape and length from the ordinary setae; they are twice and a half as long as the latter (2 mm.) and only slightly curved, want the usual thickened region in the middle, and have their distal end of a lanceolate shape. It may be observed that in the other giant earthworm of Brazil, *Geoscolex maximus* Leuck.¹⁾ (*Titanus brasiliensis* Perr.)²⁾, the setae in the posterior segments have also a tendency to separate. However, my observations about *Anteus gigas* are not quite in accordance with Perrier's description. According to this author the setae are arranged like in the common earthworm, in four series of pairs, two of them situated quite ventrally, the two others dorsally, the series are constantly parallel to each other from the anterior to the

1) Zoologische Bruchstücke, Heft II, 1841, p. 104, pl. V.

2) loc. cit. p. 57, pl. I, fig. 15 and 16.

Rosa, sul *Geoscolex maximus* Leuck., Bollett. dei Musei di Zoologia di Torino, N°. 40, 1888. Perrier afterwards described in his paper on *Pontodrilus* (Archiv. de Zoologie expériment. Vol. IX, 1881, p. 217 and 235) another species: *Tit. forguesii*; it appears however somewhat dubious to me if this species really belongs to the same genus, because it differs from *Tit. brasiliensis* by having the setae in four series of pairs, by its male pores opening on segment XVII and by the situation of the nephridiopores in front of the dorsal setae.

posterior end of the body, and the bristles of each pair are placed close to each other. Though this difference between my description and that of Perrier may perhaps do arise some doubt about the identity of our specimen with *A. gigas*, I believe our observations agree with one another in so many points to give sufficient grounds for my assertion.

The nephridiopores are very large and apparent in the segments of the clitellum and the posterior region of the body; they are situated in front of the external dorsal setae, the first of them in the intersegmental groove of segment 3 and 4. Dorsal pores are absent. Like Perrier I have not been able to find the orifices of the genital organs.

On opening the worm (fig. 1) we are struck by the immense development of the anterior septa; the 5th to 10th septum are very thick, overlapping one another and hiding totally the intestine and other organs. In the two anterior septa the central portion is carried far backward and has another structure and colour than its peripheral portion; it is of a pale brown colour and appears to be covered with a layer of short prismatical bodies of a fine granular structure, standing vertically on the surface of the septum. In the following septa the central modification spreads out peripherically and reaches the periphery in the ninth septum, giving to it the singular appearance over its whole surface. The tenth septum is not so thick as those in front of it. All these septa are fixed to each other by means of longitudinal muscle-strands. The segments 11, 12 and 13 are covered at their internal side with a brown, horny layer, thicker than the longitudinal muscular layer and showing the same structure as the modified septa. As suggested by Perrier this organisation most give firmness as well as strength to the anterior region of the body for the purpose of burrowing.

The intestinal canal (fig. 2) commences with a large pharynx, the wall of which shows no glandular structures as in many other Lumbricidae; then follows the oesophagus, with a rather wide lumen, which, before passing

into the gizzard, shows a wider portion, a specimen of proventriculus. This portion of the digestive tube is situated in front of the first thickened septum (5th), so the gizzard appears to belong to the fifth segment, though lying much farther backward. The tubular intestine then following is furnished in segment 6, 7 and 8 on each side with a large, dark coloured, intestinal gland. Perrier found in his specimen the gizzard situated in segment 6; intestinal glands are not mentioned by him.

The main trunks of the vascular system consist of a dorsal, a ventral and a supra-intestinal vessel. The dorsal vessel is a single tube, which communicates with the ventral trunk by six pairs of commissural vessels in segment 3 to 8; in segment 9, 10 and 11 three pairs of large abdominal hearts (fig. 1, *ah*) are situated, arising from the supra-intestinal vessel, which in the following segments becomes visible on the dorsal surface of the intestinal canal. In this region the dorsal trunk shows a series of large ampullae, and communicates with the supra-intestinal vessel by small vertical vessels, arising from its ventral side. The ampullae of the dorsal trunk are described and figured by Perrier; he found only four pairs of commissural vessels in segment 7—10.

Of the genital organs only the pairs of vesiculæ seminales (fig. 1, *vs*) could be recognized; they are not very large and attached to the posterior side of the anterior septum of segment 10 and 11. Perrier found them in the 11th and 12th segment.

The nephridia resemble somewhat those of *Microchaeta* (fig. 3). They consist of a great number of brown-coloured tubules, situated in a longitudinal row close to one another; each tubule forms a loop, the two limbs of which are spirally wound round each other. The whole set of tubules is united by connective tissue and attached to the end of a wide glandular tube, forming a loop which consists of a short limb that descends and a long one that ascends along the row of tubules; the ascending limb forms another U-shaped

bend and passes into a long narrow duct communicating with the interior. Neither the internal funnel, nor the manner of communication of the tubules with the main duct could be observed. It is probable that the whole set of tubules form together one continuous duct, as suggested by Benham for *Microchaeta*. Perrier describes the nephridia as: »des organes simplement un peu flexueux, terminés par une sorte de houppe formée par une série de replis membraneux implantés sur sa portion terminale libre. Cette houppe constitue le pavillon vibratile au milieu duquel s'ouvre le canal." The third nephridium, belonging to segment 5, is modified in an extra-buccal pepto-nephridium (Benham); it consists of a large mass of tubules, covering like a brown gland the whole lateral side of the oesophagus, whilst its main duct forms a loop which extends till near the first nephridium. The communication of Perrier »un oesophage membraneux portant sur ses parois quelques corps glandulaires" no doubt is referable to this organ.

Although our knowledge of the organisation of *Anteus gigas* remains rather incomplete, I believe it may be concluded from the foregoing description, that this species certainly is not identical with *Microchaeta rappi*. This species differs from *Anteus gigas* by the following characters: its setae are very minute and arranged in four couples; its segments consist of a number of annuli, so that it is difficult to limit the anterior somites; its anterior septa, though very strong, are far separated from each other, free from any overlapping; its tubular intestine has only one pair of intestinal glands; its nephridia have a different structure. Perhaps a following fuller investigation will learn us, that both species belong to the same genus, a question which at this moment cannot be settled, because we want any knowledge about the structure of the genital organs. At any rate I believe it can be stated, that there is a close relation between *Anteus*, *Microchaeta* and *Rhinodrilus*.

On the circulation of the blood in earthworms.

In a paper recently published »On *Megascolex coeruleus*» (Quart. Journal of Microsc. Science, Vol. XXXII, p. 49, pl. VI—IX) Mr. A. G. Bourne gives a detailed account of the vascular system of this gigantic earthworm. Upon these observations, partially made in the living animal, the author bases a theory about the probable course of the blood in this worm, and concludes »that throughout the body blood is forced from the contractile vessels into peripheral networks; thence it is conveyed by a system of intestino-tegumentary vessels to intestinal capillaries, and from these it returns to the contractile vessels.» It seems to be unknown to Mr. Bourne, that about twelve years ago I put forward the same view as his with regard to the main question of the circulation in earthworms: whence comes the blood into the dorsal vessel? In my paper »Aanteekeningen op de anatomie van *Lumbricus terrestris*» (Tijdschrift der Nederl. Dierkund. Vereeniging. Dl. III, pl. 6) he will find on page 37: »As to the direction of the course of the blood all observers agree in this point, that the blood flows in the dorsal vessel from the posterior extremity forwards, in the commissural vessels from the dorsal side downwards, and in both ventral vessels (supra- and sub-neural vessel) from the anterior extremity backwards. The integumentary vessels are usually considered to be the afferent vessels, the intestinal vessels to be the efferent vessels of the dorsal trunc. Because the skin is the respiratory-apparatus of *Lumbricus*, the dorsal vessel should be supplied with arterial blood and to be considered as a specimen of aorta, whilst the venous blood, coming from the intestinal canal, should flow to the ventral vessel, which therefore should be comparable with the vena cava. This opinion is also maintained and elaborated by Perrier in his detailed description of the circulation in *Urochaeta*. However I cannot agree with this view. First it must be stated, that the vessel *vt'* (a branch of the

dorso-integumentary vessel of Bourne) rightly is considered by Perrier himself in *Urochaeta* to be the homologue of the afferent vessel of the dorsal branchiae in Annelida branchiata. Now these branchiae receive always their afferent vessel from the dorsal trunc or its commissural vessels, whilst their efferent vessel joins the ventral trunc. In the vicinity of those branchiae there occur often contractile dilatations of the vessels, which of course tend to surmount the greater resistance, caused by the flowing of the blood through the branchiae. While therefore in the majority of Annelids the dorsal vessel is considered to contain venous blood, that flows in the directions of the branchiae, this should according to Perrier a. o. not be the case in *Lumbricus*, the vascular system of which is constructed on the same pattern."

I believe that Vejdowsky, who agrees with my view that the blood flows from the intestinal capillaries into the dorsal vessel, based his opinion upon the same morphological data, for, on p. 117 of his *System und Morphologie der Oligochaeten*, he refers to *Alma nilotica*, which is furnished with branchiae in the posterior region of the body; this curious Oligochaeta from the banks of the Nile was first mentioned by Grube (*Archiv für Naturgesch.* 1855, p. 129, pl. V, fig. 11—15) and later on described by Levinsen under the name of *Digitibranchus niloticus* (*Vidensk. Meddel. naturh. Forening i Kjøbenhavn*, 1889, p. 321, pl. VII, fig. 7 and 8).

EXPLANATION OF PLATE 6.

- Fig. 1. *Anteus gigas* Perrier; general view of the contents of the body cavity, when the body wall has been cut along the dorsal mid-line: *ab.* abdominal heart; *cv.* commissural vessel; *iv.* supra-intestinal vessel; *n.* nephridium; *pn.* extra-buccal pepto-nephridium; *vs.* vesicula seminalis. $\times 1\frac{1}{2}$ diam.
- Fig. 2. View of the intestinal tract and the setae, after removal of other structures: *g.* gizzard; *gl.* intestinal gland; *oe.* oesophagus.
- Fig. 3. Nephridium of the sixth segment. $\times 3$ diam.
- Fig. 4. *a.* Ordinary seta; *b.* elongated seta of the clitellum. $\times 25$ diam.

NOTE VI.

ON THE MALAYAN AND PAPUAN PIGS IN THE
LEYDEN MUSEUM.

BY

Dr. F. A. JENTINK.

January 1891.

If we separate some aberrant forms like *Babirussa*, *Dicotyles*, *Phacochoerus*, *Potamochoerus* and *Porcula* ¹⁾ from Gray's suborder Setifera, there remains a large series of Pigs which present a striking resemblance in external appearance and in dentition; they more or less resemble our common *Sus scrofa*. The latter is the only representative in Europe, meanwhile the others are distributed over Asia, the islands of the East Indian Archipelago and New-Guinea. If comparing the members of this group with *Sus scrofa* and at the same time if paying attention to their geographical distribution, one discovers that the group may be split in several smaller ones which generally coincide with a more or less restricted geographical area; names have been given to the latter smaller groups and different species have been admitted. But if all the large and small islands where at present Pigs are to be found were connected by land with the Indian continent, then I am convinced that there would be naturalists at hand to look upon those Pigs as varieties of *Sus scrofa*,

1) *Porcula salvania* Hodgson is, according to Dr. Garson (P. Z. S. L. 1883), only a young state of *Sus scrofa*.

and perhaps with more chance of probability than has been attained by defenders of the opposite view, authors like Dr. Gray and Père Heude, who have divided the mentioned large group in numerous genera and in an unlimited number of species. So Dr. Gray (Catalogue, 1869 and Hand-list, 1873) recognized the following — according to him well defined — genera: *Euhys*, *Aulacochoerus*, *Dasychoerus*, *Sus*, *Scrofa* and *Centuriosus*, and Père Heude (Mémoires concernant l'histoire naturelle de l'Empire chinois, 1888) distinguished in East Asia eleven distinct new species of the genus *Sus*, viz.: *ussuricus*, *dicrurus*, *taininensis*, *calamianensis*, *cebifrons*, *minutus*, *effrenus*, *conchyvorus*, *jalaensis*, *microtis* and *frenatus*.

Gray ¹⁾ correctly observed that the study of the Pigs is attended with considerable difficulty, probably arising from three peculiarities of the group:

1°. That most of the wild or presumed wild species are easily reduced to a domestic or semidomestic condition.

2°. That the domestic breeds return to their wild condition, even in countries situated far away from their native habitats, and that, under favourable circumstances, the newly enfranchised animals are able to hold their own against the native and colonial cultivators.

3°. That the domestic, and possibly the wild species have a great facility in breeding together, having fertile offspring.

The difficulty increases still more if we reflect on the facts that we do not know what has been the origin of our *Sus domesticus* and even not in what different parts of the world this tame Pig has been introduced by man in foregoing centuries. In the latter respect we possess only a few directly and credible notices. So I find in the Journal of Dr. Forsten, written by himself in September 1840, the following notice: »There are in the island of Banka, to

1) Mr. de Blainville made about the same observations, see *Ostéographie*, 1839.—64, T. IV, *Sus*, p. 108.

the North of North Celebes, a large number of Pigs from European origin. A dutch vessel should have been stranded there and plundered by pirates, the Pigs on board however landed and propagated. The inhabitants of Likupang often frequent the named island with perogues to get them; the Pigs are very tame and easily to catch; they are of a whitish color and agree very well with dutch tame Pigs." — In Forster's *Reise um die Welt*, 1783, p. 325, we read: »Es ist merkwürdig, dass Hunde und Schweine, die vorzüglichsten taheitischen Reichthümer, nicht einmal auf allen Inseln des Südmeeres vorhanden sind. Die Bewohner der niedrigen Eilande besitzen zwar durchgehends Hunde, aber keine Schweine; hingegen hatte man Schweine auf den freundschaftlichen Inseln, ohne Hunde anders als dem Namen (*Ghurri*) nach, zu kennen; vermuthlich ist das Thier bey ihnen ausgestorben. In Neu-seeland fehlten ebenfalls die Schweine; in Neukaledonien aber, fehlten beydes, Schweine und Hunde. Auch in Tanna hatte man nur Schweine allein. Den Taheitiern schenkten wir das erste Ziegenpaar, welches sich bey unserer zweyten Ankunft daselbst, bereits um zwey vermehrt hatte. Den Einwohnern von Tongatabbu und Tanna schenkten wir die ersten Hunde, den Neuseeländern, Schweine und Hühner; den Neukaledoniern ein paar Hunde und ein paar Schweine. Diese beyden Thierarten, die an und für sich schon so schnell und stark sich vermehren, kommen unter dem sanften Himmelsstriche in den Südländern um desto besser fort, und erreichen frühzeitig ihr völliges Wachsthum."

Every body knows that Pigs are excellent swimmers and herewith they have a very proper way to reach by sea distant islands. Indeed they do so, as we learn f. i. from Forrest (*Voyage à la Nouvelle-Guinée* ¹⁾); »les cochons sauvages, nommés *Ben*, passent souvent à la nage, en file, d'une île à une autre: le cochon de derrière appuyant son groin sur la croupe de celui qui précède"; and Wallace

1) See Lesson et Garnot, *Voyage autour du Monde*, 1826, Tome I, p. 174.

(the Malay Archipelago, vol. II, p. 141) wrote: »Pigs are spread all over the Archipelago, even to several of the smaller islands, and in many cases the species are peculiar. It is evident, therefore, that they have some natural means of dispersal. There is a popular idea that pig cannot swim, but Sir Charles Lyell has shown that this is a mistake. In his Principles of Geology he adduces evidence to show that pigs have swum, many miles at sea, and are able to swim with great ease and swiftmess. I have myself seen a wild pig swimming across the arm of the sea that separates Singapore from the Peninsula of Malacca, and we thus have explained the curious fact, that of all the large mammals of the Indian region, pigs alone extend beyond the Moluccas and as far as New-Guinea, although it is somewhat curious that they have not found their way to Australia.”

De Blainville (Ostéographie, *Sus*, p. 172) says: »Penant a fait l'observation que, dans l'Archipel Indien, le Cochon de Chine avait passé souvent à la nage, d'île en île, jusque dans la Nouvelle Guinée, où il n'en existait pas originellement... qu'ensuite ils ont émigré aux Nouvelles Hébrides, puis et successivement aux îles des Amis, de la Société et des Marquises.”

Finally it is well known that Pigs are very apt to produce varieties, by domestication, combined with differences in food and climate; so Fitzinger (Ueber die Racen des zahmen oder Hausschweines) summed up sixty distinct races of *Sus scrofa*, the supposed origin of our domesticated Pigs; d'Albertis (P. Z. S. L. 1875, p. 531) reports: »that he has not seen two specimens of *Sus papuensis*, in the Yule-island, alike amongst a hundred”, so that we may suppose that also among wild pigs there is a great variation among the individuals belonging to a given species.

Now we may suppose the so-called species of wild Pigs to be offsprings from one ¹⁾ or from more species, or main-

1) Vide A. Milne Edwards, Mammifères du Tibet, 1868—74, p. 379: »Je serais assez porté à penser que les nombreux Sangliers asiatiques constituent

tain another hypothesis — it is indisputable that the longer they have been isolated by natural barriers, f. i. by broad and deep waters, the greater chance we have to find the differences of the several groups more constant and more fixed, and therefore the species more circumscribed. And in this respect the large islands of Sumatra, Java, Borneo, Celebes and New-Guinea with the surrounding smaller islands are in the best and most favorable condition. And indeed no other part of the world is so rich in Pigs and in no other part of the world the area of distribution is more circumscribed for each species, so that about each large island here has its own distinct Pig.

I will try to give in the following pages an idea of the geographical distribution of the Pigs in the named Archipelago, especially based upon the collections in the Leyden Museum, where are stored up larger and more complete series of Pigs than in any other Museum.

Sus vittatus S. Müller.

- a, b.* Adult females, stuffed, types of the species. Sumatra. Collected by S. Müller, 1836.
- c.* Adult male, stuffed, one of the types of the species, figured in »Verhandelingen”¹⁾, pl. 29. Sumatra, Padang. Collected by S. Müller, 1836.
- d.* Young male, stuffed, one of the types of the species. Padang. Collected by S. Müller, 1836.
- e, f.* Adult specimens, stuffed. Java. Collected by Kuhl and van Hasselt.

des races locales ou espèces secondaires issues d’une souche commune plutôt que des espèces proprement dites, mais pour résoudre la question, il faudrait pouvoir comparer la tête osseuse et les autres parties du squelette chez un grand nombre d’individus appartenant à chacune de ces variétés, afin de déterminer le degré de fixité des caractères employés par les zoologistes pour les distinguer entre elles; et ces objets d’étude manquent dans nos Musées européens.” Cf. also de Blainville »Ostéographie, 1839—64, T. IV, p. 131”.

1) Verhandelingen over de Natuurlijke Geschiedenis der Nederlandsche overzeesche bezittingen. Zoologie, 1839—1844.

- g. Young specimen, stuffed. Java. Collected by von Rosenberg, 1866.
- h. Young specimen, stuffed. Java. Collected by Kuhl and van Hasselt.
- i. Very young specimen, stuffed. Java. Collected by Boie and Macklot.

(See Jentink, Catalogue ostéologique, 1887). One skeleton, Java, Tjikao; eleven skulls, Java, Sumatra (Padang and Deli).

(See S. Müller's *Verhandelingen*). The Sundanese in Java call this species *Banen*; at Batavia and at other localities along the north-coast it generally is better known under the name *Babi alang-alang*, because it likes to live under this high and thick growing grass *alang-alang* (*Imperata Koenigii*), wherein it absconds by day. The Malays of the west-coast of Sumatra call it simply *Babi-oetan*, i. e. wild Pig. In Java and Sumatra it is very frequent and is to be found everywhere from the sea-shore till up the mountains at 5000 feet; higher up we did not observe it. It likes large plains grown with *alang-alang*, wild dales overgrown with trees, shrubs and briers, low mountains thickly covered with wood and bamboos, and dark moist regions, along the foot of the high mountains, covered with wildernesses impenetrable to man; the moist and cool djatti- and teakwoods in low countries too are to its taste. It generally lives in bands from 3—5 individuals; very old specimens and especially the sow, if with young, often are met with isolated. The sow prepares a nest from dry leaves, small pieces of wood, stalks of *glaga* (*Saccharum glaga*) and *tapoes* (*Elettaria coccinea*): this nest forms externally a large heap, but internally it is hollow, furnace-shaped, sometimes with a single opening or with two openings the one opposite the other: it whelps 4—7 young ones, generally about in the midst of the dry monsoon, or in June, July or August. — These Pigs cause much trouble to the farmers by their great number, and great damage by their gluttony. They may be called omni-

vorous; at the sea-shore and in the neighborhood of the villages inhabited by fishermen, they prey upon all kinds of animal substances, especially upon small *Equulae*, which the fishermen spread over the warm sand on the shores for drying. Such animal substances give generally a very disagreeable odor and taste to the flesh of the animal. — In its stomach sometimes there are to be found more or less large balls, agreeing with the so called *aegragophilae*.

(See H. von Rosenberg, der Malayische Archipel, 1878). Wildschweine, *Sus vittatus*, *Babi-utan*, findet man mit Ausnahme der steileren und felsigen Berggelände überall (auf Sumatra) vom Seestrand an bis zum Gebirge, im Wald wie auf den Grasebenen. In der Umgegend der Redoute zu Pertibi zeigten sie sich besonders häufig. — Ueber die ganze Inselkette (westlich von Sumatra) in grosser Anzahl verbreitet ist endlich ein Wildschwein (*Sus vittatus?*), worauf die Eingeborenen überall hauptsächlich Jagd machen. Die Hausschweine, welche namentlich auf Nias häufig in den Dörfern gehalten werden, sind entweder eingefangene Wildlinge, oder Abkömmlinge von solchen.

(See Dr. B. Hagen, Die Pflanzen- und Thierwelt von Deli auf der Ostküste Sumatra's. Tijdschrift van het Kon. Nederl. Aardrijksk. Genootschap, 1890). Das Wald- oder Wildschwein, Mal. *Babi-utan*, kommt auf Sumatra und Java vor und lebt in Deli in grossen Mengen, die sich, durch das Ausbreiten der Tabakskultur, welche den Hochwald vernichtet und dafür ungeheure Flächen dichten Gestrüppes schafft, nur noch vermehrt hat. Das Wildschwein, etwas schwächer als das europäische, lebt in diesen wüsten, mit Lalang und niederem Busch bestandenen Ländereien rudelweise, und höhlt sich förmliche, oft eine Viertelstunde und mehr lange, verzweigte Gänge oder besser Röhren aus in dem todten Laub und Lalanggras, das in dichten Lagen, Generationen übereinander, den wirklichen Boden, oft bis zu vier Fuss Höhe, bedeckt, während die lebende Generation über diesem Moder, triumphirend, ihre grünen

Fahnen schwenkt, bis auch sie in das Grab zu ihren Füßen hinabsinkt. Ich selbst bin schon einem angeschossenen Eber in einer solchen stockfinsternen Röhre auf Händen und Füßen über hundert Meter weit nachgerutscht. Das Wildschwein richtet, durch seine Wühlereien, in Pflanzungen grossen Schaden an, namentlich in den Padi-(Reis)feldern zur Zeit der Reife, ferner in Pisanggärten, wo es oft in einer einzigen Nacht ganze Gruppen von mannsdicken Stämmen unterwühlt und umwirft, in Zuckerrohr- und Maispflanzungen u. s. w. In Gegenden, wo keine Pflanzungen sind, hält sich das Wildschwein mit Vorliebe an die Wurzelknollen verschiedener *Kladi-* (*Colocasia*, *Caladium*) Arten. Des eminenten Schadens halber, welchen es in den Pflanzungen der Malaiei anrichtet, lauern ihm dieselben in den Padifeldern auf und schiessen es. Da ihre Religion ihnen den Genuss von Schweinefleisch verbietet, ja selbst das Geld, welches sie durch den Verkauf des Kadavers lösen könnten, für unrein erklärt, so lassen sie ihre Beute einfach an Ort und Stelle verwesen. Höchstens lässt sich Einer herbei, einem ungläubigen, europäischen oder chinesischen Schweinefresser mitzutheilen, dass da und da ein frisch geschossenes Wildschwein liege. Das *Babi-utan* ist wild und muthig, und greift, schlecht angeschossen, oft den Schützen an, wie mein Jäger zu seinem Schreck erfahren hat, den ein Wildeber über den Haufen warf, mit seinem Gewaffen jedoch glücklicherweise auf den Schaft der Flinte traf und denselben nebst Hahn und Schloss völlig zerbrach und zersplitterte. In mein Hospital erhielt ich einst einen chinesischen Kuli, dessen Schenkel durch die Bisse eines Wildschweins böz zugerichtet waren. — Das ein Wildeber sich mit dem zahmen, überall in Deli gehaltenen, chinesischen Schwein paart, kann ich als verbürgt mittheilen. — Die Battas halten als Hausthier ein Schwein von ausnahmslos schwärzlicher Farbe, das etwas höher auf den Beinen steht als das vorige und über den ganzen Rücken eine bedeutend grössere Mähne von langen Borsten hat. Ich

habe mir leider keinen Schädel des Thieres verschaffen können.

Habitat. Sumatra and Java; probably all the islands westward Sumatra (von Rosenberg, der Malayische Archipel), Banka (S. Müller, Verhandelingen) and Flores (Max Weber, Zoologische Ergebnisse, 1890).

Sus verrucosus S. Müller.

- a. Adult male, stuffed, one of the types of the species, figured in the »Verhandeligen», pl. 28. Java, Parang. Collected by Boie and Macklot.
- b. Adult specimen, stuffed, one of the types. Java. Collected by Diard, 1830.
- c. Half grown female, stuffed, one of the types. Java. Collected by S. Müller, 1833.
- d. Young specimen, stuffed, one of the types. Java. Collected by van Raalte.
- e. Young male, stuffed. Java. Died in the Rotterdam Zoological Garden, 1880.
- f. Very young specimen, stuffed, one of the types. Java, Parang. Collected by Boie and Macklot.
- g, h. Skins of young male- and female-specimens. Java. From the Amsterdam Zoological Garden, 1861 and 1868.

(See Jentink, Catalogue ostéologique, 1887). One skeleton, Java; ten skulls, Java.

(See S. Müller, Verhandelingen). This Pig is called by the Sundanese with the Malay name *Babi*. It generally is less frequent than the *Banen* (*Sus vittatus*), lives more in the high *alang-alang*, in thick grown dales and other distant wild localities in the lower parts of the mountains, and seldom is to be met with in troops but generally alone or two or three together. Its nature is wilder and more courageous, and its strong canines are very dangerous to the dogs. To solitary plantations it is not less disadvantageous than the *Banen*, and therefore the

natives pursue and destroy it where they can. Its flesh is somewhat ruder and less tasteful than that of the *Banen*, so that the Chinese like it but little and it nearly never is to be eaten by the Europeans.

Habitat. Java.

Sus barbatus S. Müller.

- a. Adult female, stuffed, one of the types of the species, figured in the »Verhandeligen», pl. 30, fig. 1. Borneo, Banjermassing. Collected by S. Müller, 1837.
- b. Adult specimen, stuffed. Borneo. Collected by Schwaner, 1846.
- c. Young female, stuffed, one of the types, figured in the »Verhandeligen», pl. 30, fig. 2. Banjermassing. Collected by S. Müller, 1837.
- d, e. Very young specimens, stuffed. Borneo, Pontianak. Collected by Diard.

(See Jentink, Catalogue ostéologique, 1887). One skeleton, Borneo; six skulls, Borneo.

(See S. Müller, Verhandeligen). We often saw the traces of this Pig along the banks of the river Doeson and in the Lawut-lands, but only observed the animal itself a few times, once a sow with four youngs, in the western part of the Lawut-lands. The adult female, figured in the »Verhandeligen» has been hunted by the Dajaks with dogs in the neighborhood of the village Poeloe-lampej, at a little distance from the river Moloekko, in a high forest. The Dajaks along the river Doeson call *Sus barbatus*: *Baboeï* or *Bawoeï* (the tame Pig *Oenek*), the Bejadjoe-Dajaks call it *Bawoeï himba* (Forest-Pig, dutch *Boschvarken*). The Malays and Europeans bestow this wild Pig with the name *Babi poetih* (white Pig, dutch *wit varken*) on account of the light color of its skin and bristles.

Habitat. Borneo, Pontianak, Pleyharie and Banjermassing.

N. B. *Sus longirostris* Nehring is a species chiefly based upon skulls, no judicious naturalist has seen it in living state

and never a skin of it has been brought over. If — as I suggested ¹⁾ — it will turn out to be *Sus barbatus* in very advanced age, or if Nehring's view is correct must be made out by future investigations.

Sus timoriensis S. Müller.

- a. Semi-adult female, stuffed, one of the types of the species. Timor. Collected by Müller and Macklot, December 1829.
- b. Semi-adult male, stuffed, one of the types, figured in the »Verhandelingen», pl. 31, fig. 1. Timor, Pritti, bay of Koepang. Collected by Müller and Macklot, 1829.
- c, d. Young females, stuffed, types of the species. Timor. Collected by Müller and Macklot, 1829.

(See Jentink, Catalogue ostéologique, 1887). Three skulls, Timor, Pritti.

(See S. Müller, Verhandelingen). We have not been lucky enough to procure fullgrown specimens of this species, although we once saw in a forest of the mountainous country Amarassie (Timor) a much larger individual than that figured (on pl. 31): it, however, was not so tall as the above mentioned species from the large western Sunda-islands. It too seemed to be somewhat darker colored than the five not fullgrown specimens collected by us in the flat coast-land near Pritti. *Sus timoriensis* agrees in external appearance very closely with *Sus vittatus*, and so its behavior too is about the same. We observed the animal, but much more its traces, in the mountains as well as in the flat land, and at the occasion of a beat at Pritti we often saw troops of four to seven specimens. The natives call it simply *Tafi mepat* or *nassi* (wild pig, dutch *wild varken*), the Rottinese in the same sense *Bafi foei*.

Habitat. Timor.

1) Cf. Ueber *Sus celebensis* und verwandte, von Dr. Alfred Nehring. In Abhandlungen und Berichte des K. Zoologischen und Anthropologisch-Ethnographischen Museums zu Dresden, 1889, N^o. 2, p. 19.

Sus celebensis S. Müller.

- a. Adult male, stuffed, type of the species, figured in the »Verhandeligen», pl. 28^{bis}, fig. 1. Celebes, Menado. Collected by Forsten, 1841.
- b, c. Nearly fullgrown male and female, stuffed. Celebes, Gorontalo, Toelabollo. Collected by von Rosenberg, April and May 1864.
- d, e. Young females, stuffed. Toelabollo. Collected by von Rosenberg, April 1864.
- f, g, h. Very young individuals, stuffed. Celebes. Collected by Forsten.
- i. Skin of an adult specimen. Morotai. Collected by Bernstein, 1 May 1863.
- j. Skin of an adult female. Morotai. Collected by Bernstein, 1862.
- k, l. Skins of very young specimens. Morotai. Collected by Bernstein, 1862.
- m. Skin of a young specimen. Batjan. Collected by Bernstein, February 1862.

(See Jentink, Catalogue ostéologique, 1887). Eight skulls, Celebes, Batjan and Morotai.

(See von Rosenberg, die Malayische Archipel, 1878). *Sus celebensis* (Bovi¹) ist sehr allgemein, zumal in dem offenen, mit Gras bewachsenen Flachland in der Umgegend von Limbotto und Bone, und unterscheidet sich wesentlich von seinen auf Java lebenden Gattungsverwandten. Der Eber trägt als besonderes Kennzeichen einen Büschel weisser Borsten zwischen Hals und Schulter. Die Jungen haben das bekannte gelblichbraun gestreifte Jugendkleid, welches später braun, und beim ausgewachsenen Thier schwarz wird. In Gegenden, wo sie wenig gestört werden, sieht man öfters wilde Schweine unter zahmem Vieh auf der Weide. Als Mahomedaner verabscheuen die Be-

1) *Bovi* is not correct, I suppose, as von Rosenberg wrote always in his Catalogues *Booi*, the title too used by him in his »Reistogten in de Afdeeling Gorontalo.»

wohner dieses Thier und machen allenfalls nur, um es zu tödten, Jagd darauf.

(See von Rosenberg, Reistogten in de Afdeeling Gorontalo, Kou. Inst. Taal-, Land- en Volkenkunde, 1865). This species, especially peculiar to Celebes and neighboring islands, is to be met with here (Gorontalo) everywhere in small troops or families.

Habitat. Celebes: northern (Menado, Bone, Limbotto, Toelabollo), Forsten and von Rosenberg; southern (Pare-Pare, Loka near Bonthain, Katjang, Bira, Birakeke), Max Weber (Zoologische Ergebnisse, 1890). Saleyer, Max Weber (l. c.). Batjan, Bernstein. Morotai, Bernstein. Ternate, Halmahera, Batjan, Amboina and Celebes (see Dr. Finsch, Neu-Guinea und seine Bewohner, 1865).

Sus papuensis Lesson.

a. Skin of a halfgrown female. Arou, Wokam. Collected by von Rosenberg, April 18, 1865.

b. Skin of a rather young specimen. Waaigeou. Collected by Bernstein, March 24, 1863.

Skull belonging to skin a.

(See von Rosenberg, Die Malayische Archipel). *Sus papuensis* (Byen in Misool, Kau in die Aru-Inseln, Aouran in Jappen, Nava in Hattam, Neu-Guinea) kommt in ausserordentlicher Menge vor, zumal in flachen Gegenden, wie z. B. auf Biak. Die Eingeborenen lieben das Fleisch sehr und jagen das Thier mit Hunden. Zu Kwawi war ich einst Augenzeuge, wie rasch ein eben erlegtes Schwein zerstückt und vertheilt wurde. Dasselbe ward, schmutzig wie es war, in ein hellflammendes Feuer geworfen, um die Borsten oberflächlich abzusengen, hierauf in Stücke zerschnitten, mit Haut und Eingeweiden unter die Umstehenden vertheilt und $\frac{1}{2}$ Stunde nach Anlegung des Feuers war das ziemlich grosse Thier bis auf die Knochen vertilgt. Als Hausthiere findet man Katzen, Schweine und Hunde. Die Schweine, welche hie und da in den Dörfern

in Ställen gehalten werden sind gewöhnlich eingefangene Wildlinge.

(See von Rosenberg, l. c. p. 362). »*Sus aruensis* (Tāfu) kennzeichnet sich durch einen weisslichen von der Wange nach dem Hals laufenden Streifen, weissliche Kehle und Unterhals. Man findet das Thier in Menge auf allen grösseren Inseln der Aru- und Kei-Gruppe, sowie auf Koor, sowohl in der Nähe der Küste, als tief im Walde; zumal in den baumlosen Grasflächen der Insel Trangan wird es ausserordentlich häufig angetroffen". *Sus aruensis* v. Rosenberg = *Sus papuensis* Lesson, for 1^o v. Rosenberg described in the above short lines the true *papuensis*, and 2^o our skin *a*, from the Arou-island Wokam, is really a *Sus papuensis*.

(See P. Z. S. L. 1875, p. 531). Among the animals from Yule-island, at the south of New-Guinea, d'Albertis recorded the *Sus papuensis*, of which he relates that he has not seen two alike amongst a hundred. I think his meaning is not very clear, but to my purpose the fact is important that in the Yule-island *Sus papuensis* is to be found.

Peters and Doria (Annali del Museo civico di Storia Naturale, Vol. XVI, p. p. 666 and 698) suppose that *Sus papuensis* may have been introduced from elsewhere in New-Guinea. So p. 666: »il genere *Sus* degli ungulati è probabilmente importato alla N. Guinea per opera dell'uomo", and p. 698: »anche il porco (*S. papuensis*) potrebbe essere stato introdotto alla N. Guinea; i nostri viaggiatori lo hanno raccolto in varie località."

Several years before Peters and Doria wrote, Mr. de Blainville (Ostéographie, 1839—64, T. IV) expressed himself in much more positive terms: »quoique aujourd'hui ce Cochon (*Sus papuensis*) soit devenu sauvage dans la Nouvelle Guinée, où il est extrêmement abondant, on sait positivement qu'il y a été importé."

The first living specimen of *Sus papuensis* brought over to Europe is, as far as I am aware, the animal mentioned

by Dr. Sclater in the P. Z. S. L. 1881, p. 165, and in the List of the vertebrated animals in the Zool. Gardens, 1883, from Brooker-island, Louisiade Archipelago, and presented by Licut. de Hoghton. Another living specimen has been brought home by Dr. Finsch and deposited in the Zoological Gardens at Berlin (see P. Z. S. L. 1886, p. 218); it has been obtained in the month of May, on the north coast of New Guinea, near the place noted on the charts »Passir Point'', a point however, which does not really exist; it was then striped, but has now (1886) changed to the coloration of the adult animal.

The material in the different Musea to study this species is very incomplete and the description and plate given by Lesson rather insufficient, so that I think it to be of great importance to reproduce descriptions made by trustworthy scientific travellers as Dr. Bernstein and Dr. Finsch are. In one of Bernstein's manuscripts I find the following description of our specimen *b* from Waageou: »Haare der Seiten schwarz mit röthlichgelber Helfte nach der Spitze, während die Wurzelhelfte schwarz ist. Haare des Rückens stärker, länger und vorherrschend schwarz. Stirn und Nase mit schwarzlichen Haaren. Oberhalb des Mundwinkels beginnt ein weisslicher Streifen der schmaler werdend sich über die Wange bis unter das Ohr fortsetzt, ja minder deutlich sogar bis an den vordern Rand des oberen Vorderschenkels. Auf dem Bauche ebenfalls einzelne weissliche Haare und an dem vordersten Theil der Innenseite des Oberschenkels. Ohren inwendig zum Theil mit weisslichen Haaren nur zum kleineren mit röthlichfahlen besetzt.

Longitudo corporis	575 Mm.
Höhe über dem Vorderfuss	310 »
Oberarm bis Sohle	175 »
Höhe am Kreuz	350 »
v. d. Ohröffnung bis Rüsselspitze	166 »
v. d. Ohröffnung bis zum hintern Augenwinkel	45 »
Umfang am Nabel	500 »

Dr. Finsch was kind enough to send to me a description as follows: »Noch nicht ganz altes Weibchen von Tagai (angegeben auf der Karte in »Finsch, Samoafahrten«). Kopf und ganze Körper rostbräunlich, längs Nacken und Rücken mit schwarzen Borsten gemischt, daher hier melirt: die Borsten nicht sehr lang. Schnauze und der Unterkiefer bis zum Mundwinkel, sowie ein schmaler Ring ums Auge schwärzlich; Kinn und vom oberen Rande des Mundwinkels an, die Unterseite weissfahl (nicht rein weiss); das Weissfahl erstreckt sich über die Kehle, Brustmitte, die Innenseite der Vorderbeine bis zum Knie, den Bauch, bis auf die Bauchseiten und auf die Innenseite der Hinterbeine und den vorderen Rand derselben bis zur Achilles; Vorder- und Hinterbeine vom Knie an dunkler graulichweiss als die Bauchseite. Ohr rand innen weisslich gesäumt, aber die Ohren abgeschnitten, ebenso die Schwanzspitze, so dass man nichts von einem Pinsel sieht, aber der Schwanz graulichfahl, gegen die Spitze zu heller (der Pinsel war wohl noch heller) weiss. Nasenlöcher (Nüstern) fleischfarben; Iris braun, Hufe braun.

Länge von Schnauzenspitze bis Schwanzbasis 102 Cm.

» » Schnauze bis Auge 14 »

» » » » Ohrbasis 25 »

Schwanz nicht gemessen, da verstümmelt".

Habitat. New-Guinea; Jappen, v. Rosenberg; Waageou, Bernstein; Misool, Salawatti, Batanta, Koor, Key- and Arou-islands, v. Rosenberg; Yule-island, d'Albertis; Louisiade Archipelago, de Hoghton.

Sus niger Finsch.

- a. Skin of an adult male. Tidore. Collected by Bernstein, 1862.
- b. Skin of a very young individual. Ternate. Collected by Bernstein, November 8, 1862.
- c. Half grown female, stuffed. Goram. Collected by von Rosenberg, September 19, 1865.

Notes from the Leyden Museum, Vol. XIII.

d. Skin of a young specimen. Waaigeou. Collected by Bernstein, March 25, 1863.

Skull belonging to specimen *c.*

In his »Malayische Archipel, 1878, p. 362'', von Rosenberg described a new species of the Pig-family under the name *Sus ceramensis*, in the following terms: »Einfarbig schwarz ohne irgend welche Zeichnung, identisch mit dem auf Seram lebenden Schwein. Es findet sich auf allen Inseln von Seramlaut bis Tijoor''; and l. c. p. 322: »*Sus spec.*, und *Cervus moluccensis* kommen in ungeheurer Menge vor und bilden das gewöhnliche Wild für die Alfuren auf Seram.''

Dr. Bernstein remarked in his Manuscript after having given the above (page 99) mentioned description of *Sus papuensis* from Waaigeou: »ein anderes ganz schwarz mit weissliche untern Theile der Vorderfüsse''; the individual meant herewith by Bernstein is skin *d* in the Leyden Museum.

Dr. Finsch (P. Z. S. L. 1886, p. 217) described a new species of Pig from New Guinea as follows: »uniform blackish, even when young'', and he named it *Sus niger*.

Now it is evident — and with the above mentioned four specimens before me I am convinced of the fact — that Rosenberg's *ceramensis* and Finsch's *niger* are names for one and the same uniform black species and that therefore there is reason to reject *niger* (Finsch, 1886) in favor of *ceramensis* (v. Rosenberg, 1878), notwithstanding *niger* is a much better name than the title *ceramensis*, an ill chosen local title for a species with a great geographical distribution. There is, however, in the British Museum the skull of a Pig from Ceram, collected by Mr. Wallace and mentioned (in Gray's Catalogue, 1869, and Hand-list, 1873) under the name *Sus verrucosus*, var. *ceramica* (1869), or *Dasychoerus verrucosus*, var. *ceramicus* (1873). Now it may be that it later on appears that this skull really belongs to a specimen of the black Pig, and then I think it logical to call it by the name *ceramicus* Gray or *ceramensis* v. Rosenberg, but I think it wise — in the first place in

order to avoid confusion — for the present to accept the specific title *niger*, bestowed upon the black Pig by Dr. Finsch, a name moreover preferent as it so excellently expresses the most prominent character of the species.

Our four above mentioned specimens have all the bristles of a uniform black color, the adult as well as the young ones; however I remark that our very young specimen *b* (it measures from tip of snout to base of tail about 32 Cm.) presents under a certain lighting very feeble traces of reddish black stripes, one from the angle of the mouth over the cheeks to the shoulder and two along the sides of the body: I suppose that they only are present in very young (younger perhaps than six weeks, see Finsch, P. Z. S. L. 1886, p. 218) specimens and very soon disappear, and therefore not have been observed by Dr. Finsch.

Among our specimens of *niger* and *papuensis* are individuals with one or more legs partly differing in color with the rest of the body, that is to say: there is a more or less broad whitish ring just above the hoofs. I wrote to Dr. Finsch and asked him if he had perhaps observed the like, whereupon he had the courtesy to inform me as follows: »die Zeichnungen (Samoafabrten, mit Holzschnitt) sind nach der Aquarelle gemacht die Sie copiren liessen und zwar nach den Exemplaren, welche ich lebend mitbrachte nach Berlin. Sie wurden dort von Moritz Hoffmann nach dem Leben gemalt, wol die ersten vernünftigen Abbildungen, den die von Lesson taugt auch nichts. Aber diese Bilder stellen nur junge, kaum halbwachsene Thiere (*Sus papuensis* and *Sus niger*) dar. Alte sehen mit ihren gewaltigen Gewehren ganz anders aus, und namentlich alte Eber von *Sus niger* sind collossale Thiere. Ich habe in den Wildniss die Thiere nur fliehen, brechen hören, aber nie eins gesehen, da sie sehr scheu sind. Aber in den Niederlassungen der Eingeborenen sieht man stets Wildschweine in halb zahmen Stande, wenn noch jung ziemlich zahm, alt böseartig; ganz junge (Frishlinge) so zahm als Hunde, Lieblinge der Weiber, die junge Ferkel häufig an ihren Brüsten säugen. Alte

Schweine, namentlich Eber, sieht man selten, da sie vorher gegessen werden. Schweine zur Festmahlzeit der Männer. Man hält gewöhnlich, aber immer in beschränkter Anzahl, Sauen; wenn diese hitzig werden, laufen sie in den Wald und lassen sich von wilden Ebern decken, dann kommen sie wieder ins Dorf. Sie werden dabei wol immer Eber ihrer Art aufsuchen, denn ich habe nie Bastarde von beiden Species gesehen. Dagegen kommen unter den halbdomesticirten Schweinen der Eingeborenen zuweilen Exemplare mit weiss an den Beinen vor, vielleicht ein Vorderfuss oder Fessel oder an zwei Beinen, aber immer unregelmässig. Dies sind Schweine die vermuthlich schon in ein Paar Generationen in Domestication gezuchtet wurden, und solche weisse Flecke sind sichere Zeichen von Domestication. Die zahmen Schweine von Port Moresby und Blanche Bai in Neu Pommern rechne ich nicht, denn an diesen Plätzen sind schon europäische Hausschweine eingeführt und daher nur gemischtes Blut."

Dr. Finsch's view may be correct or not, it appears that white rings on the legs of the Pigs in question are not uncommon. Our *Sus niger b* has the right hindleg ringed; *c* has four ringed legs, the hindlegs very broadly; meanwhile *d* has only rings round the fore legs. Our *Sus celebensis k* and *l* have four white ringed legs, and *Sus papuensis d* has the hind legs for their greatest part white.

Although it now is to be supposed that the specimens of *Sus niger* living in the above mentioned small islands in a wild state or in domestication, once may have originated from New Guinea, I hardly can believe that there will be some evidence that the most accurate investigations in loco will give any trustworthy answer to this question and that we are obliged to content us with a mere supposition.

Habitat. New Guinea, Finsch; Waaigeou, Ternate and Tidore, Bernstein; Ceram to Tijoor, von Rosenberg.

Dr. Finsch wrote me: »ich habe *Sus niger* und *Sus*

papuensis überall beobachtet, wo ich an der Küste von Neu Guinea war, dass ist von Freshwater-Bai bis Keppel-Bai an der Südostküste, und an der Ostküste von Ostcap bis Humboldt-Bai! Auf den d'Entrecasteaux und in Neu Britannien giebt es ebenfalls Wildschweine, doch habe ich nie welche gesehen, nur die Hauer. Dasselbe gilt von Neu Irland."

N. B. There has been described in the Trans. Linn. Soc. London, 1879, p. 276, a Pig from Ternate under the name *Sus ternatensis* Meyer. It is a young specimen and was lent to Prof. Rolleston by Dr. A. B. Meyer: Prof. Rolleston stated, that in colouring of the head it differs from that of any other *Sus* seen by Dr. Meyer or figured by Schlegel — the head being covered all over with long black hairs, except in the region occupied by a broad yellowish brown streak beginning between the eyes and descending to the snout, where it broadens.

I strongly suspect that it is a young *Sus niger* and that the yellowish brown streak is a merely accidental one.

NOTE VII.

ON DACTYLOMYS DACTYLINUS AND KANNABATEOMYS AMBLYONYX.

BY

Dr. F. A. JENTINK.

March 1891.

(Plate 7).

Dactylomys is the name of a genus of South-American Rats, created in 1838 by Mr. Is. Geoffroy-Saint-Hilaire ¹⁾ for the reception of *Echimys dactylinus* of Mr. E. Geoffroy-Saint-Hilaire (1817). Mr. Is. Geoffroy bestowed the specific title *typus* on that animal and herein all the later authors ²⁾ have followed him, although according the rule of priority it would have been more correct to retain the name given by Mr. E. Geoffroy and to call the animal *Dactylomys dactylinus*. But as it perhaps is a matter of euphony and as Is. Geoffroy's name *typus* once had gained the victory I followed in my paper in the Notes from the Leyden Museum, 1887, p. 224, the bad example of my predecessors.

Natterer brought home from his journeys in South-America two rats, described ³⁾ by Andreas Wagner, as belonging to the mentioned genus, under the name *Dactylomys amblyonyx* Natterer, with the following short diag-

1) *Compte rendu des séances de l'Académie des Sciences*, 1838, p. 888; *Annales des Sciences naturelles*, Seconde Série, T. X, 1838, p. 126, and *Magasin de Zoologie*, 1840, p. 26.

2) Except Dr. Trouessart, see *Catalogue des Mammifères vivants et fossiles*, Rongeurs, 1881, p. 124.

3) *Archiv für Naturgeschichte*, 1845, p. 146.

nose: »*Dactylomys* supra flavus, nigro-adspersus, subtus pulchre ochraceus; unguibus dilatatis; cauda tota pilis vestita." The named author published later on¹⁾ a more detailed description based upon the same type-specimens from Natterer's collections. In that paper Wagner makes no mention of skull or dentition. The very exact description of the external parts ends with the following terms: »Natterer erhielt 2 Exemplare, Männchen und Weibchen, aus den Waldungen von Ypanema (Provinz San Paulo). Diese Thiere leben auf Bäumen, klettern sehr gut und tragen in Baumhöhlungen Vorräthe von Samen und Früchten für den Winter zusammen. Das Weibchen war mit einem Jungen trächtig."

As far as I am aware no other specimens of this species have been brought over to Europe, or have been described or mentioned up to the year 1867; in the interim Wagner's paper was the only source. *D. amblyonyx* was unknown or ignored by Mr. Deville, who in 1852²⁾ wrote: »il n'existe dans ce genre (*Dactylomys*), qu'une seule espèce.... caractérisée par Mr. Isidore Geoffroy-Saint-Hilaire, *Dactylomys typus* Is. G. S. H."

In 1872 Mr. R. Hensel³⁾ read a paper entitled: »Beiträge zur Kenntniss der Säugethiere Süd-Brasieliens'', before the members of the »Akademie der Wissenschaften zu Berlin'', after having shortly mentioned in 1867⁴⁾ his specimens of *Dactylomys amblyonyx*, and after having published in »der Zoologische Garten 1872'', a paper concerning more especially the biology of the mammals observed or collected by himself in Southern Brazil. He explained in a very satisfactory way why specimens of *Dactylomys amblyonyx* are so rarely to be found in European Musea:

1) Abhandlungen der II. Classe der Kön. Akademie der Wissenschaften, V. Bd., II. Abth., p. 304

2) Revue et Magasin de Zoologie, 1852, p. 556.

3) Abhandlungen der Kön. Akademie der Wissenschaften zu Berlin, 1873; Der Zoologische Garten, 1872, p. 80.

4) Sitzungsber. der Gesellschaft naturforschender Freunde zu Berlin, 1867, p. 21.

»Diese Fingermaus (oder Bambusratte) lebt vorzugsweise an den Ufern der Flüsse, wo sie mit baumhohem Bambusrohre dicht bewachsen sind. Da, wo die jungen Schösslinge desselben abgefressen sind, kann man das seltene Thier vermuthen, das bei Tage vielleicht stets verborgen ist. Führt man dagegen in windstiller Nacht und bei hellen Scheine des Vollmondes in der Canoa unter jenen Bambusdickichten hin, so hört man bald hoch in denselben einen merkwürdigen Schrei, den man unbedingt einem Vogel zuschreiben sollte. Bei der grössten Ruhe und Aufmerksamkeit entdeckt man wohl zufälligerweise gegen den hellen Nachthimmel und hoch in den Kronen der Bambusen das kleine rattenähnliche Thier, wie es auf den schwankenden Zweigen mit blitzähnlicher Schnelligkeit auf und nieder klettert. Man schiesst und wartet bis zum Morgen, um zu sehen, ob man getroffen hat, denn in die Tiefe des Dickichts vermag bei Nacht Niemand einzudringen; da finden wir einzelne Haare oder Ueberreste des Körpers am Boden und gewinnen die traurige Ueberzeugung, dass unterdess eine Beutelratte uns zuvorgekommen ist. Für den kundigen Leser wird es keine weiteren Erklärung bedürfen, weshalb das Thier so selten in unseren Museen ist.“

Very interesting is the following observation: »Merkwürdig ist die Eigenthümlichkeit, dass die Fingermaus die glatten Rohrstengel bei dem Klettern zwischen die zweite und dritte Zehe der Hinterfüsse nimmt und dass darnach diese beiden Zehen gebaut sind.“ Like Natterer so Hensel observed: »(zwei) trachtige Weibchen hatten nur je einen Fötus.“

Hensel collected 2 skeletons, 2 skulls, 2 foetus and 3 specimens in spirits. Skeleton with 13 ribs, 6 lumbares, 3 sacrales and 36 (or more) caudales. He observed ¹⁾: »Nach der Form des Schädels und der Zähne scheint die Gattung *Dactylomys* mit den Hystricinen verwandt zu sein, unter

1) Sitzungsbericht der Gesellschaft naturforschender Freunde zu Berlin, 1867, p. 21.

denen sie sich zunächst an *Chaetomys* anschliessen würde." For the rest Hensel said not a single word concerning the remarkable dentition of *D. amblyonyx* nor in this nor in his other papers on the subject.

In 1888 Prof. H. Winge wrote a paper on »Jordfundne og nulevende Gnavere fra Lagoa Santa, Minas Geraes, Brasilien." He had two specimens of *D. amblyonyx* from Rio de Janeiro and Porto Alegre; skull and dentition (partly) figured on plate VII, head and feet on plate VI. As I cannot understand Winge's language I am not able to tell what he stated about the species in question.

Dr. E. A. Göldi from Rio de Janeiro relates ¹⁾ that he personally collected specimens of *D. amblyonyx* and confirms the biological observations made by Dr. Hensel. Nothing about dentition.

The dentition of *D. typus* (*dactylinus*) has been very insufficiently described and figured — I remarked it already in 1887 — meanwhile the dentition of *amblyonyx* has not sufficiently been studied and described — as I just pointed out — and therefore I think that a very accurate and minutely made description of both dentitions may be called a desideratum; the conclusion we arrive at will be unexpected and surprising.

dactylinus ²⁾): the series of molar teeth of opposite sides of the upper jaw very converging and nearly meeting in front, of the lower jaw also converging but in front not surpassing half the distance of the hindmost molars. In both jaws all the enamel folds are directed backward under an angle of about 45°. Each molar divided into two separate lobes; those of the upper jaw in the form of a tuning-fork; in those of the lower jaw (except in the premolars) the foremost lobe presents more the form of a V, meanwhile the other lobe

1) Der Zoologische Garten, 1889, p. 225. Die Bambusratte oder brasilianische Fingerratte, *Dactylomys amblyonyx* Natt.

2) Skull of the specimen discussed in the Notes from the Leyden Museum, 1887.

is a simple elongate enamel fold. The lower premolars present a quite different shape, although like the other molars each divided into two separate lobes, for the anterior lobe is a very short and simple enamel fold, the posterior lobe, however, shows the same enamel folds (one V-shaped and one simple elongated) like the other lower molars but here united together by a small enamel bridge.

*amblyonyx*¹): the series of molar teeth of opposite sides of the upper jaw very slightly converging, of the lower jaw not converging but each series in the middle very slightly curved. In both jaws the enamel folds are nearly perpendicular to the molar series. Molars not divided into two separate lobes (except the lower premolars); the lobes on each tooth of the upper jaw present two very irregular tuning-fork-like folds, united together by a small enamel bridge. The lobes on each tooth (except the premolars) of the lower jaw present an anterior V-shaped fold and a posterior elongate one, united together by a small enamel bridge. The lower premolars show about the same shape and folds like those parts in *dactylinus*, the anterior fold, however, is relatively and absolutely larger than in that species.

The difference in the form of the enamel folds of the dentition in the two named species is so great as to compel me to form a new genus for the reception of *amblyonyx*. This genus I propose to call *Kannabateomys*²).

Dactylomys dactylinus and *Kannabateomys amblyonyx* present moreover in their bony parts as well as in their external characters some differences, as appear to me of more than specific value. So the upper molar series are much more pushed forward in *dactylinus*, and the nasal bones in that species are more elongate and remember what is to be found in *Cavia*, *Dolichotis*, *Lagidium* and *Lagostomus*, meanwhile in *amblyonyx* the named parts

1) Skull of an adult specimen in the Leyden Museum recently procured from Brazil.

2) Κάνναβας, reed, cane and βλάτω, I mount.

agree much more with *Lasiuromys*, *Loncheres* and *Echimys*; *D. dactylinus* has a typical rat-tail, at first sight naked, so extremely small and short are the few hairs upon it; *K. amblyonyx* on the other hand has a very hairy tail, more like *Lasiuromys villosus* and ending in a tuft of long hairs like in *Loncheres hispida*.

It seems to me very puzzling that *amblyonyx* up to this date always has been regarded as belonging to the genus *Dactylomys* and I think that lack of material has been the mere reason why it not rather has been enregistered as a *Loncheres* with some species of which genus — f. i. with *Loncheres hispida* — it has indeed much more in common (in external characters, in shape and hairiness of tufted tail, in size, in form of skull, in form of bony palate, in color of the molars, a. s. o.) than with *Dactylomys dactylinus*, notwithstanding *L. hispida* has spiny hairs and sharply pointed curved claws.

Some measurements of the skull of an adult specimen of *Kannabateomys amblyonyx* in our Museum:

Length of skull	58	Mm.
Width between zygomata	28.5	»
Length of nasal bones	16	»
» » upper molar series	14	»
» » lower » »	15.5	»
Diastema upper jaw	12	»

The molars of *Dactylomys dactylinus* are white colored, those of *Kannabateomys amblyonyx* reddish brown; in both species the incisors are smooth and orange colored.

Habitat of *Kannabateomys amblyonyx*: Brazil, Province San Paulo (Göldi), Ypanema (Natterer), Prov. Minas Geraes (Museum at Rio de Janeiro, vide Göldi, l. c. p. 230), Prov. Rio de Janeiro, Porto Real (Leyden Museum), Porto Alegre (Winge), and Prov. Rio Grande do Sul (Hensel).

NOTE VIII.

ON A NEW SPECIES OF LANISTES.

BY

M. M. SCHEPMAN.

(Plate 8, figs. 1 and 2).

Lanistes congicus Boettger.

Testa sinistrorsa, anguste umbilicata, conico-globosa, aut flavido- aut viridi-olivacea, semper fasciis spiralibus purpureis angustis in anfr. ultimo picta; spira scalaris, magis minusve conica; apex obtusus. Anfr. $5\frac{1}{2}$, superne vel acute angulati vel carinati, supra plani, carina interdum linea spirali impressa circumscripta, infra convexiusculi, sutura impressa disjuncti, irregulariter ruguloso-striati, spiraliter non lineati, ultimus $3\frac{1}{2}$, altudinis aequans, convexus, modice inflatus, carina suturalis magis minusve evanescente, ad umbilicum compresso-carinatus, carina obtusa. Apertura subsemicircularis, intus alba, purpureo spiraliter fasciata, peristoma simplex, margine parietali brevi subprotracto, columellari inferoque modice incrassatis. — Operculum tenue, corneum, superne subangulatum, basi subrotundatum.

Alt. 32—35, diam. max. $33\frac{1}{2}$ — $34\frac{1}{2}$, alt. apert. 21, lat. apert. 14—15 mm.

Specimens of this species, collected at Landana, have been procured by the Leyden Museum from Mr. Petit Ainé. I sent some of them to Dr. Boettger of Frankfort o/M., who has occupied himself some time ago with Mollusks from the Congo, and who found them identical with the species described above.

As the species was not yet described, Dr. Boettger kindly allowed me to publish here his description of the type specimens, which were collected near the village Elau, on 2 days journey from San Salvador, Congo.

The specimens of the Leyden Museum (see plate 8, figs. 1 and 2) are, however, much smaller than those of Dr. Boettger, who says on this subject: I think that none of your two small varieties ought to bear a distinct name.

The specimens vary in the carina of the base, which is more or less sharply marked, and in the elevation of the spire, which is much eroded in nearly all the specimens.

The measurements of a few specimens of the Leyden Museum are:

Alt. 23, diam. max. $21\frac{1}{2}$, alt. apert. 15, lat. apert. 11 mm.

» 16, » » 21, » » 13, » » 10 »

» 16, » » 19, » » 13, » » $9\frac{1}{2}$ »

» $11\frac{1}{2}$, » » 14, » » 9, » » 7 »

Rhoon near Rotterdam, February 1891.

NOTE IX.
A NEW SPECIES OF UNIO.

DESCRIBED BY

M. M. SCHEPMAN.

Unio landanensis, n. sp.

(Plate 8, fig. 3).

Shell oblong, attenuated towards the anterior part, inaequilateral, rather inflated, very thin, rather smooth but covered with a thin closely wrinkled epidermis, greenish-olive, with two indistinct green rays on the posterior slope. Upper- or hinge-margin nearly straight, lower margin irregularly curved, its anterior part rising obliquely into the anterior margin, which is regularly rounded and meets the upper margin at an obtuse angle. Posterior side gradually sloping to a wedgelike point. Beaks slightly incurved, eroded, placed at the distance of about one third from the anterior edge of the upper margin; they are slightly inflated, rather elevated, and sculptured with small wavy wrinkles and traces of small knobs, the wrinkles extend towards the front and also, though indistinctly, towards the posterior slope. Ligament rather long, narrow, yellowish brown. From the beaks two shallow grooves are running towards the posterior margin, which correspond with the green rays. Inside of the shell nacreous, nacreous. Hinge and teeth very thin, right valve with an elongate triangular tooth, with a slightly notched crest, lateral tooth much elongated, slightly furrowed length-

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wise: left valve with a very indistinct tooth and two lateral ones; anterior muscular scars shallow, posterior ones and pallial scar scarcely visible.

Length 41, breadth under the beaks 19, behind the ligament 22 mill. Diam. 18 mill.

Hab. Landana (Congo), collected by Mr. Petit Aîné (Leyden Museum).

This shell has externally much the appearance of being an *Anodonta*, the very weak hinge increases still the resemblance. From *Unio Juliana* Rang, which should also look like an *Anodonta*, it differs, as far as may be judged from the description, by the form, which in *Juliana* is described as »oblongue ou arrondie, concave'', by the epidermis which is yellow, often adorned with a large number of green rays in *U. Juliana*, while the nacre in that shell is not rosy. About the sculpture of the beaks of *U. Juliana*, Rang says: »leurs sommets à l'extérieur sont armés, surtout dans le jeune âge, de petits tubercules spiniformes."

Rhoon near Rotterdam, March 1891.

NOTE X.

DESCRIPTION DE NOUVELLES ESPÈCES DE
CURCULIONIDES.

PAR

W. ROELOFS.*Ommatolampus pictus*, n. sp.

(Planche 8, fig. 4).

Rouge-brun, orné de taches noires; dessous d'un rouge-brun jaunâtre. — Long. 22 mill., rostr. excl.

Tête presque noire. Rostre brun-noirâtre, rugueusement ponctué, surtout à la partie basilaire, pourvu d'un point allongé entre les yeux, d'un autre plus faible vers l'insertion des antennes et d'une rainure profonde sur ses côtés. Antennes de la couleur du rostre.

Prothorax très finement ponctué sur les côtés, orné sur le disque de deux taches noires allongées.

Elytres avec des stries ponctuées larges et peu profondes; une tache noire se trouve sur les épaules; la même couleur couvre les côtés des élytres, commençant avant le milieu; elle s'étend d'abord jusque vers la troisième strie près de la suture, se rétrécit en arrière, couvre l'extrémité et remonte un peu au bout de la suture. Au milieu de ce dessin noir, vers le bord de l'élytre, se voit encore une petite tache rouge.

Pygidium assez fortement ponctué, surtout aux bords; il est couvert d'une courte pubescence, ayant dans un certain jour, un aspect argentin. Ses côtés et le bout sont noirs.

Dessous d'un rouge-brun-jaunâtre. Le prosternum et les côtés des derniers segments de l'abdomen ponctués, le dernier segment plus profondément. Les sutures des pièces du métasternum, deux lignes allant des hanches antérieures vers le bord antérieur du prothorax, une bande allant des pattes postérieures jusqu'au dernier segment de l'abdomen, le bout de ce dernier et les bords postérieurs des trois segments intermédiaires sont noirs. Les côtés du métasternum et du premier segment abdominal sont garnis d'une pubescence extrêmement fine et serrée, ayant dans un certain jour un aspect argentin. Les pattes sont finement ponctuées; le bout des cuisses, des jambes et les tarses sont noirs.

Le prothorax et les élytres présentent dans un certain jour l'aspect poussiéreux, qui se voit chez beaucoup d'espèces du groupe des Rhynchophorides.

Un individu originaire de Tandjong Morawa, Serdang (N. O. Sumatra) et provenant des chasses du Dr. Hagen. — Musée de Leyde.

Obs. L'*O. Cuvieri* Boh. est synonyme avec l'*O. tetraspilotus* Guér. La description de Boheman date de 1845, celle de Guérin de 1843 au plus tard (voir la fin de la page 384 des »Insectes» de l'Iconographie du Règne animal).

Chevrolat a eu tort de rebaptiser l'*O. Germari* Boh. en *O. Allardi* à cause du *Rhynchophorus Germari* Perty du Brésil, qui actuellement fait partie du genre *Dynamis* Chevr. (Ann. Soc. Ent. de France. 1882. p. 563, et Bull. ent. p. 159).

Depuis la publication du tome VIII du Catalogue de Munich (1871) une seule espèce du genre *Ommatolampus* a été décrite, savoir: *O. stigma* Pascoe (Ann. & Mag. N. H. 5th ser. vol. XIX (1887) p. 374; pl. 11, fig. 8) des îles Andaman.

Oxyopisthen deplanatum, n. sp.

Prothorax aplati par dessus. Noir, côtés du mésosternum, du métasternum et du premier segment de l'abdo-

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men couverts par une tache blanche. Cuisses rouges, excepté leur extrémité. — Long. 15 mill., rostr. excl.

Rostre d'un noir-brunâtre, peu courbé, obsolètement ponctué, avec une dépression peu profonde, courte et plus fortement ponctuée sur les côtés devant les antennes. Celles-ci de la couleur du rostre. Tête finement ponctuée.

Prothorax aussi long que large à la base, qui est arrondie; fortement aplati par dessus, la partie aplatie paraissant d'un noir mat, par une ponctuation forte, presque confluyente. Une carène très faible est à peine indiquée au milieu. Les côtés du prothorax et le prosternum d'un noir luisant et munis d'une ponctuation moins serrée que celle du dessus. Les côtés du prothorax sont un peu déprimées au dessus des hanches, et devant les épaules. Le bord rétréci antérieur du prothorax, assez fortement séparé sur les côtés, porte une ponctuation fine et serrée. Ecusson allongé, ovale.

Elytres à peine plus larges que le prothorax à sa base, presque une fois et demi aussi longues que celui-ci, un peu rétrécies en arrière, déprimées autour de l'écusson, derrière les épaules et transversalement derrière le milieu; d'un noir luisant et munies de stries ponctuées.

Pygidium déclive suivant une ligne courbe, en triangle allongé, portant une carène sur la ligne médiane, ses côtés également élevés en carène, son extrémité d'abord un peu élargi et finissant en pointe aiguë. Il est couvert d'une ponctuation allongée et présente vers les carènes latérales un espace mat.

Côtés du mésosternum, épisternums métathoraciques ainsi qu'une tache sur les côtés du premier segment de l'abdomen blancs.

Dessous d'un noir luisant, métasternum vaguement ponctué, segments de l'abdomen plus fortement surtout le bout du dernier segment. Le métasternum est déprimé au milieu de sa partie postérieure et cette dépression se continue sur le premier segment abdominal. Le dernier segment porte vers l'extrémité une dépression allongée fortement ponctuée, suivie d'un bourrelet transversal, isolant l'extrémité de l'abdomen.

Cuisses postérieures atteignant presque l'extrémité du pygidium. Toutes les cuisses sont rouges jusque près du bout, et portent une petite dent vers leur dernier tiers où la cuisse est un peu évasée sur sa tranche inférieure. Leur dessous est garni de pubescence brune jusqu'à cet endroit. Jambes postérieures munies d'une dent triangulaire sur leur tranche intérieure, près de la base.

Un individu unique, provenant du pays des Niams-Niams, et fourni au Musée de Leyde par Mr. Schlüter.

Oxyopisthen Büttikoferi, n. sp.

Subparallèle, d'un noir uniforme, luisant, antennes d'un brun-rougeâtre vers la base, élytres un peu déprimées, striées-punctuées; pygidium horizontal, pointu. — Long. 13 mill., rostr. excl.

Rostre environ de la longueur de la tête et le prothorax pris ensemble, lisse. Tête finement ponctuée sur le vertex.

Prothorax un peu plus long que large à sa base, qui est presque droite; peu rétréci en avant, un peu déprimé en arrière, couvert d'une punctuation serrée. Ecusson petit, allongé.

Elytres presque une fois et demie plus longues que le prothorax, à peine plus larges que lui, à leur base; un peu déprimées à la base et transversalement derrière le milieu, munies de stries ponctuées assez larges.

Pygidium horizontal, très allongé, couvert de points plus denses à sa base; ses côtés sont élevés en carène; une carène médiane se prolonge en pointe à l'extrémité et deux taches grisâtres se remarquent vers le bout.

Dessous très luisant, vaguement ponctué, dernier segment de l'abdomen plus fortement surtout vers l'extrémité qui porte une dépression, suivi d'un rebord peu élevé et un enfoncement plus profond vers la pointe. Le métasternum est un peu déprimé en arrière ainsi que le premier segment de l'abdomen. Cuisses postérieures un peu sinueuses et courbées vers le haut, atteignant environ au

delà du milieu du dernier segment; elles sont fortement dentées vers leur tiers postérieur; les autres cuisses sont faiblement dentées.

Les deux individus que j'ai sous les yeux présentent quelques différences sexuelles; chez la ♀, le rostre est un peu plus long et le pygidium plus étroit et plus allongé. Capturés par Mr. J. Büttikofer à Grand Cape Mount (Libéria). — Musée de Leyde.

Oxyopisthen vittatum, n. sp.

Linéaire, subparallèle, noir, peu luisant; le bout des jambes antérieures brun-rouge; la ponctuation du prothorax et des élytres remplie d'un enduit gris-jaunâtre; une bande blanc-jaunâtre latérale sur le prothorax, se continue sur les côtés du mésosternum, du métasternum et du premier segment de l'abdomen. — Long. 10 mill., rostr. excl.

Rostre d'un noir luisant, courbé, environ de la longueur du prothorax et de la tête pris ensemble, avec une petite ligne imprimée à la base. Massue des antennes peu élargie vers le bout, presque cylindrique. Tête ponctuée.

Prothorax de la moitié plus long que large, très faiblement élargi sur les côtés, peu rétréci en avant, arrondi à la base, couvert d'une ponctuation très serrée, remplie d'un enduit gris-jaunâtre, décoré d'une bande latérale, étroite, blanc-jaunâtre, plus rapprochée sur le devant. Ecusson très petit.

Elytres à peine une fois et demie aussi longues que le prothorax et de la largeur de celui-ci, tronquées au bout, parallèles sur les côtés, garnies de stries ponctuées, dont les points sont remplis d'un enduit gris-jaunâtre, les épaules sont d'un noir luisant.

Pygidium en triangle allongé, rétréci avant l'extrémité qui finit par une pointe aiguë, prolongement d'une carène médiane. Il est couvert d'une ponctuation serrée et ses côtés sont un peu relevés vers le bout; on y remarque deux espaces couverts d'un enduit grisâtre.

Le prosternum est garni au milieu d'un enduit analogue qui couvre également une petite carène droite entre les hanches antérieures. La bande gris-jaunâtre du prosternum se continue sur les côtés du corps jusqu'au bout du premier segment de l'abdomen. Le métasternum est fortement ponctué, l'abdomen porte une ponctuation encore plus forte, très espacée; le dernier segment présente un petit bourrelet limitant la pointe terminale.

Les pattes sont fortement ponctuéées. Les cuisses des deux paires antérieures ont une dent au delà du milieu, les cuisses postérieures sont longuement pédonculées, courbées vers le haut et munies d'une dent vers le dernier tiers; elles dépassent un peu la base du dernier segment de l'abdomen.

Un seul individu, pris par Mr. Greshoff au Congo. — Musée de Leyde.

Obs. Chez les trois espèces d'*Oxyopisthen* décrites ci-dessus, le scape des antennes ne dépasse pas le bord antérieur du prothorax et les articles du funicule sont moins allongés que chez *O. funebre* Ill. (= *funerarium* Thoms. suivant Chevrolat, Ann. Soc. Ent. de France, 1882, p. 568) et *O. Westermanni* Auriv., que j'ai sous les yeux.

Sauf l'*O. Westermanni* Auriv. (Entom. Tidskr. VII (1886) p. 97, note) de la côte de Guinée, qui est la seule espèce de ce genre décrite depuis la publication du tome VIII du Catalogue de Munich, trois genres voisins ont été publiés, savoir:

Haplorhynchus (Valdavi) Auriv., Entom. Tidskr. VII (1886). p. 95. Cameroon.

Stenophida (linearis) Pascoe, Journ. Linn. Soc. XIX (1886). p. 336. Momboia.

Anoxyopisthen (Büttneri) Kolbe, Stett. Ent. Zeit. (1889). p. 131. Congo.

La Haye, Mars 1891.

NOTE XI.

THE BIRDS OF BILLITON.

BY

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The Island of Billiton is situated between Sumatra, Borneo and Java. From a geological point of view, it may be considered to be a continuation of the chain, formed by the Malay Peninsula, the Mountains of the Riouw- and Linga Archipelago and of the Island of Banka, from which latter it is separated by Strait Gaspar, while the tolerably broad Karimata Passage separates it from Borneo.

Although Billiton lies in the centre of a zoologically

*) Our readers will remember the communication in the Notes of last year, from the hand of Dr. Jentink, on the Mammals collected by Dr. A. G. Vorderman on the Island of Billiton, during the month of June 1888. Shortly afterwards the well-known Ornithologist of the Malay Archipelago published the ornithological results of the same journey, in a paper: *De vogels van Billiton*, in „*Natuurkundig Tijdschrift voor Nederlandsch Indië*” (deel L (1890), pp. 410—519). As the Mammals above mentioned are already published in our Notes, and the *Natuurkundig Tijdschrift* not being easily accessible to every Ornithologist, the mentioned paper, moreover, being printed in Dutch, and ornithological investigations having been the principal reason of Mr. Vorderman's visit to the island, it may be advisable and Mr. Vorderman kindly allows to publish here a brief extract from this interesting paper. The list of Birds will immediately be followed by another, enumerating the Lepidopterous Insects collected on the same trip, prepared by Mr. P. C. T. Snellen, and originally published in the „*Tijdschrift der Nederlandsche Entomologische Vereeniging*” (vol. XXXIII, p. 279, pl. 12).

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J. BÜTTIKOFER.

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tolerably well-explored region, the fauna of this island was still unknown. That was the reason for my visit to the island in the month of June 1888, during which time I not only travelled through the greater part of it, but also chanced to cross to the neighbouring Island of Mendanao, where I spent three days in the vicinity of the light-house, situated on the mountain-ridge. This tolerably large island belongs to the same geological formation as Billiton, and is separated from this latter island by a narrow passage.

The ornithological collection, brought together during my stay on Billiton and Mendanao, contains not a single species of which the habitat is restricted to these islands. Of the 93 species, contained in the list, there are 32 which are not found in Java, 10 which are not found in Borneo, 8 are not known from Malacca, and only 5 not from Sumatra. The avifauna of Billiton, therefore, seems to agree more with that of Sumatra than with that of Malacca, less with that of Borneo, and the least with that of Java. To my and my huntsmen's astonishment we found no crows on the islands, nor any species of *Ploceus*, nor *Sturnopastor jalla* and *melanopterus*, nor *Acridotheres griseus*, all of them species which are tolerably common in Java.

FAM. FALCONIDAE.

1. *Onychaëtus malayensis* (Reinw.). Billiton.
2. *Haliastur indus* (Bodd.). Billiton, Mendanao. Native name: *Lang*.

FAM. STRIGIDAE.

3. *Scops lempiji* (Horsf.). Billiton, one specimen.
4. *Ketupa javanensis* (Less.). Billiton, one specimen.

FAM. PSITTACIDAE.

5. *Palaeornis longicauda* (Bodd.). Native name: *Bajang*. Very common on both islands, generally 10

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to 15 specimens together, becomes very tame and is often kept as cage-bird by the natives.

6. *Loriculus galgulus* (Linn.). Native name: *Kelinsak*. Billiton, Mendanao, nesting in hollow trees.

FAM. TROGONIDAE.

7. *Pyrotrogon duvaucelli* (Temm.). Native name: *Pandai daré*. Billiton.

FAM. CAPITONIDAE.

8. *Chotorea versicolor* (Raffles). Native name: *Toetoe*. Very common on both islands, all day long producing the monotonous sounds; too-too tootoot, repeated several times after each other.

FAM. PICIDAE.

9. *Jyngipicus fusco-albidus*, Salvad. Billiton, one specimen.
 10. *Callolophus malaccensis* (Lath.). Billiton, two specimens.
 11. *Meiglyptes tukki* (Less.). Native name: *Platok badok*. Billiton, 3 males and 1 female obtained.
 12. *Micropternus brachyurus* (Vieill.). Native name: *Platok kidjang*. Very common on both islands.
 13. *Sasia abnormis* (Temm.). Billiton, where it seems to be a rare species. Only one specimen obtained.

FAM. CUCULIDAE.

14. *Cacomantis sepulcralis*, S. Müll. Billiton. One specimen obtained.
 15. *Rhopodytes sumatranus* (Raffl.). Native name: *n'Doroe*. Very common on both islands, and not shy at all.

FAM. BUCEROTIDAE.

Buceros species. Billiton. On a high tree, I saw once two hornbills, which, with the aid of my spyglass, easily

were recognized to be *Buceros rhinoceros*. It would have been very interesting to make out if they belonged to the Sumatran form or to *B. rhinoceroïdes* Temm., from Borneo. Unfortunately I was not happy enough to have a shot at them, and the question, therefore, could not be dissolved.

FAM. MEROPIDAE.

16. *Merops bicolor*, Bodd. Native name: *Birik*. Not rare in Billiton.

FAM. ALCEDINIDAE.

17. *Alcedo meninting*, Horsf. Native name: *Peninting itam*. Billiton, along the small rivulets, but much rarer than the very common *Ceyx innominata*.
 18. *Pelargopsis leucocephala* (Gm.). Native name: *Tidaut kalak*. Along the banks of the Lingang River, Billiton.
 19. *Ceyx innominata*, Salvad. Native name: *Peninting merah*. Billiton, along rivulets.
 20. *Caridagrus concretus* (Temm.). Native name: *Kekoewai*. Not rare in the interior of Billiton.
 21. *Sauropatis chloris* (Bodd.). Native name: *n'Kakë*. Billiton and Mendanao, along the beach.
 22. *Sauropatis sancta* (Vig. & Horsf.). Native name as above. Billiton and Mendanao.

FAM. CORACIIDAE.

23. *Eurystomus orientalis* (Liun.). Native name: *Tiong batoe*. Tolerably common on both islands. Iris brown, bill and feet lively red, eyelids red.

FAM. EURYLAEMIDAE.

24. *Eurylaemus javanicus*, Horsf. Native name: *Sem-pœr oedjan*. Tolerably common all over in Billiton; his voice is compared by the sound of falling rain.
 25. *Eurylaemus ochromelas*, Raffl. Native name: *Sem-pœr oedjan darat*. Billiton.

26. *Cymborhynchus macrorhynchus* (Gm.). Native name: *Sempoer oedjan soengai*. Billiton. Two specimens, both with white spots on the three outermost pairs of tailfeathers.

FAM. CAPRIMULGIDAE.

27. *Caprimulgus affinis*, Horsf. Native name: *Kolong*. Common in Billiton.
28. *Caprimulgus concretus*, Bp. Native name: *Kolong*. One specimen from Billiton.

FAM. CYPSELIDAE.

29. *Collocalia fuciphaga* (Thunb.). Billiton. I shot one specimen on the plain at the northern foot of the Tadjem Mountain. No informations about the nesting places could be obtained from the natives.
30. *Dendrochelidon longipennis* (Rafin.). Native name: *Kelajang kclēpitoet*. Billiton, very common near Begantong in the interior.

FAM. HIRUNDINIDAE.

31. *Hirundo javanica*, Sparrm. Native name: *Kelajang*. Billiton, Mendanao. Plentiful at Tandjong Pandan, where it is found nesting in the open galleries of the European dwelling-houses.
32. *Hypothymis azurea* (Bodd.). Native name: *Boeroeng taroem*. Very common in Billiton.
33. *Leucocerca javanica* (Sparrm.). Native name: *Gandarassi*. Billiton, not common.
34. *Terpsiphone affinis* (Hay). Native name: *Boeroeng tali kepang*. Billiton.

FAM. ARTAMIDAE.

35. *Artamus leucorhynchus* (L.). Billiton, Mendanao.

FAM. CAMPEPHAGIDAE.

36. *Pericrocotus ardens*, Boie. Billiton.

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37. *Irena cyanea*, Begbei. Native name: *Mas kapor*.
Mendanao.

FAM. LANIIDAE.

38. *Myiolestes obscurus* (Horsf.). Billiton. One male collected.
39. *Hyloterpe brunneicauda*, Salvad. Billiton.

FAM. NECTARINIIDAE.

40. *Prionochilus percussus* (Temm.). Native name: *Pēntis koembang*. Billiton, not very common.
41. *Prionochilus thoracicus* (Temm.). Billiton.
Only one specimen obtained.
42. *Prionochilus maculatus* (Temm.). Native name: *Pēntis koedong*. Billiton.
43. *Dicaeum trigonostigma*, Scop. Native name: *Pēntis*, of the female: *Pēntis bēnaloeng*. Billiton.
44. *Aethopyga siparaja* (Raffl.). Native name: *Kēlajoet*. Billiton, not common.
45. *Nectarophila hasseltii* (Temm.). Native name: *Kēlajoet*. Billiton.
46. *Chalcostetha insignis* (Jard.). Native name: *Kēlajoet*. Billiton.
47. *Anthreptes malaccensis* (Scop.). Native name: *Kēlajoet*. Billiton, Mendanao.
48. *Chalcoparia singalensis* (Gm.). Native name: *Kēlajoet*. Billiton.
49. *Arachnothera longirostra* (Lath.). Native name: *Tjotjapan*. Billiton.

FAM. MELLIPHAGIDAE.

50. *Jora viridissima*, Bp. Native name: *Poenai ara*.
Billiton, common.
51. *Phyllornis sonneratii* (Jard. & Selby). Native name: *Boeroeng daun*. Billiton.
52. *Phyllornis icterocephala*, Less. Native name: *Boeroeng daun*. Billiton.

FAM. BRACHYPODIDAE.

53. *Pycnonotus analis* (Horsf.). Billiton.
54. *Pycnonotus plumosus*, Blyth. Native name: Berëbž. Billiton.
55. *Pycnonotus pusillus*, Salvad. Native name: Berëbž. Billiton.
56. *Jole olivacea*, Blyth. Native name: Berëbž. Billiton. Iris in adult and young white.
57. *Brachypodius melanocephalus* (Gm.). Native name: Pëlintang.
58. *Criniger phaeocephalus* (Hartl.). Native name: Berëbž irang. Billiton.

FAM. TIMELIIDAE.

59. *Mixornis gularis* (Raffl.). Native name: Sepompong. Billiton.
60. *Cyanoderma erythropterum* (Blyth). Billiton.
61. *Macronus ptilosus*, Jard. & Selby. Native name: Sepompong gadoek. Billiton.
62. *Drymocataphus nigricapitatus* (Eyt.). Native name: Boeroeng pëlandoek. Billiton.
63. *Brachypteryx malaccensis*, Hartl. Native name: Boeroeng pëlandoek. Billiton.
64. *Setaria pectoralis* (Salvad.). Billiton.

FAM. PITTIDAE.

65. *Pitta cucullata*, Hartl. Native name: Popak. Billiton, common.

FAM. SYLVIIDAE.

66. *Orthotomus borneoensis*, Salvad. Native name: Kroedjik. Billiton.
67. *Orthotomus cineraceus*, Blyth. Native name: Kroedjik. Billiton.
68. *Orthotomus ruficeps* (Less.). Native name: Kroedjik. Billiton.

69. *Orthotomus flavoviridis*, Moore. Native name: *Kroedjik*. Billiton. Hitherto only known from Malacca.
70. *Cisticola cursitans* (Frankl.). Native name: *Ketoppi*. Billiton.

FAM. SAXICOLIDAE.

71. *Kittacincla macroura* (Gm.). Native name: *m' Boeroek*. Billiton.
72. *Copsychus mindanensis* (Gm.). Native name: *Moeraï*. Billiton, Mendanao.

FAM. STURNIDAE.

73. *Calornis chalybaea* (Horsf.). Native name: *Perling*. Billiton.
74. *Gracula javanensis* (Osb.). Native name: *Tiong*. Billiton, Mendanao.

FAM. ORIOLIDAE.

75. *Oriolus indicus*, Briss. Billiton.

FAM. TRERONIDAE.

76. *Treron nasica*, Schleg. Native name: *Poenai koenok*. Billiton. The colors of the naked parts are as follows: anterior part of bill Naples-yellow, posterior part wine-red. Loral part, space round the eye and behind the latter pale yellowish green, iris orange yellow, feet wine-red, nail pale horn-color, bottom of feet dirty yellow. On the plate, contained in the work on the Sumatra-Expedition, the colors of these parts are inaccurate.
77. *Treron vernans* (Linn.). Native name: *Poenai daun*. Billiton, Mendanao.
78. *Treron fulvicollis* (Wagl.). Native name: *Poenai sawang*. Billiton.
79. *Ptilonopus jambu* (Gm.). Native name: *Poenai djamboe*. Billiton.

80. *Carpophaga aenea* (Linn.). Native name: *Përgum*. Billiton, Mendanao.
81. *Carpophaga bicolor* (Scop.). Billiton.

FAM. COLUMBIDAE.

82. *Spilopelia tigrina* (Temm.). Native name: *Tëkoekoer*. Billiton.

FAM. GOURIDAE.

83. *Chalcophaps indica* (Linn.). Native name: *Limbokan*. Billiton.
84. *Calloenas nicobarica* (Linn.). Native name: *Boeroeng djoenai*. This pigeon is not found in Billiton, but on some small neighbouring islands, for instance in Poeloe Lima in the Gaspar Strait, where no beasts of pray and no monkeys are found.

FAM. ROLLULIDAE.

85. *Rollulus roulroul* (Scop.). Native name: *Siauw*. Billiton.

FAM. PERDICIDAE.

86. *Areoturnix plumbipes* (Hodgs.). Native name: *Poejo*. Billiton, one specimen.
87. *Excalfactoria chinensis* (Linn.). Billiton. A male specimen obtained.

FAM. GLAREOLIDAE.

88. *Glareola isabella*, Vieill. Billiton.

FAM. SCOLOPACIDAE.

89. *Numenius phaeopus* (Linn.). Billiton and Mendanao.

FAM. ARDEIDAE.

90. *Herodias intermedia* (v. Hasselt). Billiton.
One specimen shot on the Lingang River.

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91. *Butorides javanica* (Horsf.). Native name: *Roetjau*. Billiton.

FAM. CICONIIDAE.

92. *Leptoptilos javanicus* (Horsf.). Native name: *Bango*. Billiton, on the sand-banks near Cape Roe.

FAM. PELECANIDAE.

93. *Fregata aquila* (Linn.). Native name: *Bientajong*. Billiton. On the neighbouring Island of Laukwas and probably on other small islands, this bird is passing the night in great number. The fact, that never a nest of these birds was found, caused the belief amongst the natives, that this bird flies so extremely high up in the air to drop his egg, that this latter breeds out while dropping, and that, in stead of the egg, the young bird reaches the sea.

NOTE XII.

LIST OF THE LEPIDOPTEROUS INSECTS
COLLECTED BY Mr. A. G. VORDERMAN IN THE
ISLAND OF BILLITON.

BY

P. C. T. SNELLEN.

Up to this day only a single information concerning the Lepidopterous fauna of the island of Billiton, situated between Sumatra and Borneo, was published (see: Godman, Salvin and Druce in Proceed. Zool. Soc. of London for 1878, p. 637, pl. 40). This communication was based upon a small collection made by Mr. S. N. Walter and consisting of thirty-three species. A more extensive collection,

*) In order to have in one and the same journal a complete enumeration of the animals brought from the island of Billiton by Dr. Vorderman, Mr. Snellen kindly allowed me to insert in the Notes from the Leyden Museum the list of the Lepidoptera, published by him in the Tijdschrift voor Entomologie (vol. XXXIII, p. 279; pl. 12) with interesting notes concerning the geographical connection of the species, and with a description and figure of the two new ones.

Besides Mr. Piepers the Leyden Museum also received a certain number of the collected Lepidoptera, and, moreover, a few representatives of other insect-orders, viz. COLEOPTERA: *Aceraius emarginatus* Weber, *Catharsius molossus* Fabr., *Lachnosterna* spec., *Lepidiota* spec., *Tricholepis vestita* Sharp, *Anomala* spec.; HYMENOPTERA: *Fespa tropica* Linn, *Sphex diabolicus* Smith, *Mygimima antrosericea* Guér. (= *gigas* Taschb.) with its prey: a Mygalid; two species (males only) of *Mutilla*, *Camponotus gigas* Latr.; ORTHOPTERA: *Panesthia javanica* Serv. and a Mantid.

Among the Lepidoptera sent to our Museum were 2 species which are recorded neither by Messrs. Godman, Salvin and Druce, nor by Mr. Snellen, viz. *Adolias Diardi* Snell. v. Voll. var. and *Papilio Agamemnon* Linn, which make the number of Rhopalocera known as yet from Billiton amount to 93 and the total number of Lepidoptera to 108 species. I have intercalated both species in Mr. Snellen's list, with the numbers 35 a and 78 a.

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C. RITSEMA Cz.

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however, was received in 1888 by Mr. M. C. Piepers, which collection owed its origin to the following circumstances:

During the month of June 1888 Mr. A. G. Vorderman, town-surgeon at Batavia, undertook an excursion to Billiton and the neighbouring island of Mendanao for the sake of his Ornithological studies. In the meantime he had brought together, besides many other natural history objects, an important collection of Lepidoptera, chiefly Rhopalocera, which, for the greatest part, was sent by him to Mr. Piepers. In none of these islands high mountains are found, and the height of the localities where the insects were captured does not surpass 3000 feet. The Lepidoptera, which at present make part of our collection, are of great interest, especially with regard to their geographical connection with those of the neighbouring islands of Sumatra and Borneo, and of the peninsula of Malacca. In my original paper (see Tijdschr. v. Entom. XXXIII, p. 279; pl. 12) all the differences I met with are carefully mentioned, in order to increase the value of my remarks, and to make use as much as possible of the important collection brought together by Mr. Vorderman.

The collection received by Mr. Piepers contained 82 species of Rhopalocera and 11 of Heterocera, together 93 species. Messrs. Godman, Salvin and Druce, moreover, notice 9 Rhopalocera and 4 Heterocera, so that the number of the Rhopalocera known as yet from Billiton increases to 91 species¹⁾. Though there are certainly still many more species to be found, especially of the small Lycaenina and Hesperidina, we have already sufficient evidence that the Lepidopterous fauna of Billiton is much closer connected with that of Malacca, Sumatra and Borneo than with that of Java.

There are only two species, an *Adolias* and a *Chalcosia*, which I believe to be new. Messrs. Godman, Salvin and Druce described 3 species as new, one of which (*Myrina*

1) See, however, the footnote on the foregoing page.

nivea) was also contained in Mr. Vorderman's collection; the second (*Antheraea billitonensis*) was wanting, and the third (*Nyctalemon docile*) does not differ specifically from *Nyctalemon Patroclus*. On the other hand I feel entitled to name three remarkable, probably local, varieties, viz. var. *immaculata* of *Lexias dirtea*, var. *saturata* of *Amblypodia Apidanus*, and var. *aurago* of *Cathaemia haemorrhoea*.

The species recorded by Messrs. Godman, Salvin and Druce, but not collected by Dr. Vorderman, are:

1. *Hestia Clara* Butler, Trans. Ent. Soc. of London. 3rd ser., vol. V, p. 469. (Identical with *Hestia Leuconoë* Erichs.).
2. *Euploea Menetriesii* Felder, Wien. Ent. Monatschr. IV, p. 398. (Probably a variety of *Euploea Alcatheoë* Godart.).
3. *Euploea Thoosa* Hübner, Samml. Exot. Schmett. (Variety of *Euploea Radamanthus* Fabr.).
4. *Zeuxidia Horsfieldii* Felder, Novara-Reise. Lepid. p. 460; pl. 62, fig. 4.
5. *Charaxes Schreiberi* Godart, Encycl. Méthod. IX, p. 825.
6. *Callidryas Catilla* Cramer, Utitl. Kap. I, p. 87; pl. 55, fig. C, D. (The species figured here is not named *Catilla* but *Crocale*, and no doubt synonymous with *Pomona* Fabr.).
7. *Papilio Antiphates* Cramer, Utitl. Kap. I, p. 113; pl. 72, fig. A, B.
8. *Papilio Eurypylus* Linné, Syst. Nat. I, p. 754. (Strongly resembling *Evemon* Boisd. which was met with by Mr. Vorderman).
9. *Casyapa Thrax* Linné, Syst. Nat. I, p. 794.
10. *Chaerocampa suffusa* Walker, Cat. Lep. Brit. Mus. Heterocera. VIII, p. 146. — Snellen, Tijdschr. v. Entom. XXVIII, p. 254; pl. 9, fig. 2.
11. *Hypsa Silvandra* Cramer, Utitl. Kap. IV, p. 155; pl. 369, fig. D. (Cf. also Tijds. v. Ent. XXXI, p. 141).

12. *Antheraea Billitonensis* nov. spec. Druce, Proc. Zool. Soc. of London, 1878, p. 642.
13. *Hypopyra Feniseca* Guenée, Noct. 3, p. 200.

Species collected by Mr. Vorderman:

1. *Euploea Crameri* Lucas, Revue Zoologique, 1853, p. 318 (♂).
2. *Euploea Midamus* Linn., *Papilio Mulciber* Cram., Uitl. Kap. II, p. 45; pl. 127, fig. C, D.
Trepsichrois Linnaei Moore, Proc. Zool. Soc. of London, 1883, p. 286.
3. *Euploea Aegyptus* Butler, Proc. Zool. Soc. of London, 1866, p. 316. — Snellen, in Midden-Sumatra. Lepid. p. 13; pl. 1, fig. 1, 2.
4. *Euploea Alcatheë* Godart, Encycl. Méthod. IX, p. 178.
5. *Danaïs Aspasia* Fabr., Mant. Ins. II, p. 15, n°. 145; id., Ent. Syst. III, p. 170, n°. 526. — Distant, Rhopal. Malay. p. 13; pl. 1, fig. 7.
Euploea Philomela Zincken, Nova Acta Acad. Nat. Cur. XV, p. 184; pl. 16, fig. 17.
Danaïs Crocea Butler, Proc. Zool. Soc. of London, 1866, p. 57, n°. 53; pl. 4, fig. 5.
6. *Danaïs Agleoïdes* Felder, Wien. Ent. Mon. IV, p. 398, n°. 17. — Distant, Rhopal. Malay. p. 15; pl. 1, fig. 5.
7. *Danaïs similis* Linn., Mus. Lud. Ulr. p. 299; id., Syst. Nat., Ed. XII, I, 2, p. 782, n°. 193.
Danaïs vulgaris Butler, Ent. Mo. Mag. XI, p. 164. — Distant, Rhop. Mal. p. 10; pl. 1, fig. 8 (*Radena*).
8. *Danaïs Juventa* Cram., Uitl. Kap. II, p. 139; pl. 188, fig. B. — Distant, Rhopal. Malay. p. 407; pl. 39, fig. 4 (*Radena*).
9. *Danaïs Melanippus* Cram., Uitl. Kap. II, p. 44; pl. 127, fig. A, B. — Distant, Rhopal. Malay. p. 19; pl. 2, fig. 1 (var. *Hegesippus*).
Papilio Hegesippus Cram., l. c. p. 128; pl. 180, fig. A.

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10. *Cyllo Leda* Linn., Syst. Nat., Ed. XII, I, 2, p. 773. — Cram., Uitl. Kap. III, p. 5; pl. 196, fig. C, D.
11. *Ypthima Baldus* Fabr., Syst. Ent. App. p. 809.
12. *Ypthima Pandocus* Moore, Cat. Lep. Mus. East-Ind. Comp. I, p. 235. — Hewitson, Trans. Ent. Soc. of London. 3rd ser. Vol. II, p. 290; pl. 18, fig. 12.
13. *Mycalesis Mineus* Linn., Syst. Nat., Ed. XII, I, 2, p. 768, n°. 126. — Distant, Rhopal. Malay. p. 50; pl. 4, fig. 13, 14 (♂, ♀).
Papilio Justina Cram., Uitl. Kap. IV, p. 75; pl. 326, fig. C.
14. *Mycalesis Hesione* Cram., Uitl. Kap. I, p. 16; pl. 11, fig. C, D.
Mycalesis Medus Fabr. — Distant, Rhopal. Malay. p. 40; pl. 4, fig. 8.
15. *Mycalesis fuscum* Felder, Wien. Ent. Mon. IV, p. 401. — Distant, Rhopal. Malay. p. 53; pl. 5, fig. 1 (♀).
Mycalesis Diniche Hewitson, Exot. Butt. *Mycalesis*, pl. 4, fig. 23.
16. *Mycalesis Anapita* Moore, Cat. Lep. Mus. East-Ind. Comp. I, p. 232. — Distant, Rhopal. Malay. p. 418; pl. 39, fig. 8.
17. *Elymnias Leucocyma* Godart, Encycl. Méthod. IX, p. 326.
Elymnias nigrescens Distant, Rhopal. Malay. p. 61; pl. 6, fig. 1 (♀) and pl. 9, fig. 4 (♀).
18. *Elymnias Panthera* Fabr., Mant. Ins. II, p. 39.
Melanitis Dusara Horsfield, Cat. Lep. Mus. East-Ind. Comp. pl. 5, fig. 7 (1829).
19. *Elymnias Lais* Cram., Uitl. Kap. II, p. 21; pl. 110, fig. A, B. — Wallace, Trans. Ent. Soc. of London, 1869, p. 325. — Distant, Rhopal. Malay. p. 62; pl. 9, fig. 2.
20. *Ergolis Ariadne* Linn., Syst. Nat., Ed. XII, I,

- 2, p. 778. — Distant, Rhopal. Malay. p. 137; pl. 11, fig. 6.
- Papilio Coryta* Cram., Uitl. Kap. I, p. 136; pl. 86, fig. E, F.
21. *Limenitis Nefte* Cram., Uitl. Kap. III, p. 111; pl. 256, fig. E, F. — Moore, Proc. Zool. Soc. of London, 1858, p. 13; pl. 50, fig. 5.
- Athyma Nefte* var. *nivifera* Distant, Rhopal. Malay. p. 163; pl. 16, fig. 6.
22. *Limenitis Kresna* Moore, Proc. Zool. Soc. of London, 1858, p. 12; pl. 50, fig. 4. — Distant, Rhopal. Malay. p. 161; pl. 16, fig. 3.
23. *Pandita Sinope* Moore, Cat. Lep. Mus. East-Ind. Comp. I, p. 182; pl. 6, fig. 3. — Distant, Rhopal. Malay. p. 146; pl. 12, fig. 13.
24. *Acca Procris* Cram., Uitl. Kap. II, p. 15; pl. 106, fig. E, F.
25. *Neptis Aceris* Lepechin, Reise etc. I, p. 203; pl. 17, fig. 5, 6. — Ochsenheimer, Schmett. von Europa. I, 1, p. 136; IV, p. 17 and 129. — Snellen, in Midden-Sumatra. Lepid. p. 15.
- Papilio Leucothoë* Cram., Uitl. Kap. IV, p. 15; pl. 296, fig. E, F.
26. *Charaxes Polixena* Cram., Uitl. Kap. I, p. 85; pl. 54, fig. A, B.
27. *Cyrestis Rahria* Westw., Moore, Cat. Lep. Mus. East-Ind. Comp. I, pl. 3a, fig. 2. — Distant, Rhopal. Malay. p. 142; pl. 12, fig. 4.
28. *Zeuxidia Doubledaii* Westwood, Gen. Diurn. Lep. p. 329, n°. 2, note; pl. 52, fig. 1. — Distant, Rhopal. Malay. p. 424, fig. 124 (♂) and pl. 38, fig. 6.
29. *Amathusia Phidippus* Linn., Syst. Nat., Ed. XII, I, 2, p. 752. — Cram., Uitl. Kap. I, p. 108; pl. 69, fig. A, B.
30. *Thaumantis Klugius* Zincken, Nova Acta Acad. Nat. Cur. XV, p. 165; pl. 15, fig. 11 (♂).

31. *Clerome Stomphaæ* Westwood, Trans. Ent. Soc. of London, 2nd ser., vol. IV, p. 186; pl. 21, fig. 3 and 4.
32. *Diadema Bolina* Linn. — Distant, Rhopal. Malay. p. 164; pl. 10, fig. 10 and 12 (♂), and pl. 15, fig. 12 (♀).
33. *Adolias Alpheda* Godart, Encycl. Méthod. IX, p. 384.
Adolias Octogesima Snell. v. Voll., Tijdschr. v. Entom. V, p. 193; pl. 10, fig. 5 (the male, not the female: p. 194; pl. 11, fig. 1).
Adolias Jama Distant, Rhopal. Malay. p. 119; pl. 14, fig. 8 (♂), and pl. 15, fig. 4 (♀).
34. *Adolias decoratus* Butler, Proc. Zool. Soc. of London, 1868, p. 605; pl. 45, fig. 2 and 9.
Euthalia decorata Distant, Rhopal. Malay. p. 122, fig. 41, woodcut (♀); pl. 14, fig. 9 (♂).
35. *Adolias Blumei* Snell. v. Voll., Tijdschr. v. Entom. V, p. 204; pl. 12, fig. 3 and 4.
- 35a. *Adolias Diardi* Snell. v. Voll., Tijdschr. v. Entom. V, p. 188; pl. 10, fig. 2.
 An example of a variety in which the blue colour on the hind wings remains farther removed from the outer margin. Four similar examples from Banka are in the Leyden Museum.
36. *Adolias (Tanaecia) supercilia* Butler, Proc. Zool. Soc. of London, 1868, p. 610, n°. 4; pl. 45, fig. 7. —? Distant, Rhopal. Malay. p. 131; pl. 15, fig. 8.
37. *Adolias (Tanaecia) Pulasara* Moore, Trans. Ent. Soc. of London. 2nd ser., vol. V, p. 71; pl. 6, fig. 2. — Distant, Rhopal. Malay. p. 130; pl. 14, fig. 30 (♀).
38. *Adolias (Tanaecia) Vordermani*, nov. spec. Snellen, Tijdschr. v. Entom. XXXIII, p. 293; pl. 12, fig. 1.
39. *Lebadea Martha* Fabr., Mant. Ins. II, p. 56; id.

- Ent. Syst. III, 1. p. 139. — Butler, Cat. Diurn. Lepid. by Fabr., p. 59; pl. 1, fig. 4. — Distant, Rhopal. Malay. p. 145; pl. 17, fig. 10 and 11.
- Aconthea Alankara* Horsfield, Cat. Lep. Mus. East-Ind. Comp. pl. 5, fig. 6 (1829).
- Limenitis Paduka* Moore, Cat. Lep. Mus. East-Ind. Comp. I, p. 179.
40. *Messaras Erymanthis* Drury, Illustr. Exot. Entom. I, pl. 15, fig. 3 and 4. — Cram., Uitl. Kap. III, p. 77; pl. 238, fig. F, G. — Distant, Rhopal. Malay. p. 177; pl. 8, fig. 4 (♂).
41. *Cynthia Arsinoë* Cram., Uitl. Kap. II, p. 100; pl. 160, fig. B, C.
- Cynthia Dejonge* Distant, Rhopal. Malay. p. 185; pl. 10, fig. 1 and 2.
42. *Prothoë Franckii* Godart, Encycl. Méthod. IX, p. 825.
- Prothoë Angelica* Butler, Ann. and Mag. of Nat. Hist. 5th ser., vol. XVI, p. 53.
- Prothoë uniformis* Butler, l. c. — Distant, Rhopal. Malay. p. 434; pl. 38, fig. 4.
43. *Lexias Dirtea* Fabr., Ent. Syst. III, 1. p. 59.
- Symphædra Dirtea* Distant, Rhopal. Malay. p. 112; pl. 12, fig. 7 and 8 (♂, ♀).
- Var. *immaculata* Snellen, Tijdschr. v. Entom. XXXIII, p. 296.
44. *Apatura Osteria* Westwood, Gen. of Diurn. Lep. p. 305, note.
- Eulacera Osteria* Distant, Rhopal. Malay. p. 100; pl. 12, fig. 5 and 6 (♂, ♀).
45. *Precis Ida* Cram., Uitl. Kap. I, p. 66; pl. 42, fig. C, D (abominable!); IV, p. 167; pl. 374, fig. C, D.
46. *Junonia Laomedea* Linn. — Cram., Uitl. Kap. I, p. 13; pl. 8, fig. F, G (too dark).
47. *Abisara Echerius* Stoll, Uitl. Kap. p. 140; pl. 31, fig. 1, 1a, 1b.

- Abisara Kausambi* Distant, Rhopal. Malay. p. 189;
pl. 18, fig. 10 and 11 (♂, ♀).
48. *Allotinus subviolaceus* Felder, Novara Reise,
II, p. 368; pl. 35, fig. 27 and 28.
Allotinus Alkamah Distant, Rhopal. Malay. p. 452;
pl. 44, fig. 3.
Logania Andersoni Moore, Journ. Linn. Soc. Vol.
XXI, p. 39; pl. 3, fig. 6.
49. *Lycaena Osias* Röber, Iris n°. 3, p. 56; pl. 5,
fig. 17. — Staudinger, Iris n°. 2, pl. 1, fig. 4.
Lycaena Amphissina Staudinger, l. c. p. 109.
50. *Lycaena Aratus* Cram., Utitl. Kap. IV, p. 144;
pl. 365, fig. A, B.
51. *Lycaena Celeno* Cram., Utitl. Kap. I, p. 50; pl.
31, fig. C, D.
Lampides Aelianus Distant, Rhopal. Malay. p. 228;
pl. 21, fig. 18, ♂ (nec Stoll).
52. *Lycaenesthes (Niphanda) tessellata* Moore,
Proc. Zool. Soc. of London, 1874, p. 572; pl.
66, fig. 6. — Distant, Rhopal. Malay. p. 458;
pl. 42, fig. 13 and pl. 44, fig. 21.
53. *Sithon (Myrina) nivea* Godman, Proc. Zool. Soc.
of London, 1878, p. 640; pl. 40, fig. 3 and 4.
Myrina hiemalis Godman, l. c. fig. 5 and 6. —
Distant, Rhopal. Malay. p. 249, pl. 22,
fig. 13.
54. *Sithon Amrita* Felder, Wien. Ent. Monatschr. IV,
p. 395.
Neocheritra Amrita Distant, Rhopal. Malay. p. 252;
pl. 20, fig. 15 (♀) and pl. 23, fig. 12 (♂).
55. *Sithon Tharis* Geyer, in Hübner's Zuträge, 5tes
Hundert, p. 22; fig. 883, 884. — Distant,
Rhopal. Malay. p. 257; pl. 20, fig. 19.
56. *Sithon Estella* Hewitson, Illustr. of Diurn. Lep.
p. 31, n°. 15; pl. 16, fig. 50 and 51.
57. *Sithon Lisias* Fabr., Mant. II, p. 65. — Boisdu-
val, Spéc. Gén. I, pl. 22, fig. 2.

- Biduanda Boisduvalii* Moore, Journ. Asiat. Soc. Bengal. 1884, p. 31.
58. *Deudoryx Domitia* Hewitson, Illustr. of Diurn. Lep. p. 12; pl. 6, fig. 6 and 7. — Distant, Rhopal. Malay. p. 280; pl. 23, fig. 7 (♂).
59. *Deudoryx Timoleon* Stoll, Uitl. Kap. p. 146; pl. 32, fig. 4. — Boisduval, Spéc. Gén. I, pl. 22, fig. 4. *Iraota Boswelliana* Distant, Rhopal. Malay. p. 258; pl. 22, fig. 23 (♀).
60. *Amblypodia Centaurus* Fabr., Syst. Ent. p. 520. *Narathura Centaurus* Distant, Rhopal. Malay. p. 261; pl. 21, fig. 4 and 5 (♂, ♀).
61. *Amblypodia Anarte* Hewitson, Cat. Lycaen. Brit. Mus. p. 5, n° 20; pl. 3, fig. 16 and 17; idem, Illustr. of Diurn. Lep. p. 4, n° 8; pl. 1, fig. 6 and 7. *Narathura Agnis* Distant, Rhopal. Malay. p. 362; pl. 21, fig. 29 (♀).
62. *Amblypodia Eumolphus* Cram., Uitl. Kap. IV, p. 19; pl. 299, fig. G, H. *Narathura Farquhari* Distant, Rhopal. Malay. p. 264 and p. 463; pl. 23, fig. 3 (♂).
63. *Amblypodia Abseus* Hewitson, Cat. Lycaen. Brit. Mus. p. 9, n° 40; pl. 5, fig. 51 and 52.
64. *Amblypodia Singhapura* Distant, Rhopal. Malay. p. 273, fig. 84, woodcut (♀).
65. *Amblypodia Apidanus* Cram., Uitl. Kap. II, p. 63; pl. 137, fig. F, G. — Distant, Rhopal. Malay. p. 273, fig. 85 (woodcut). *Papilio Dorimond* Stoll, Uitl. Kap. p. 166; pl. 37, fig. 4, 4 D. Var. *saturata* Snell., Tijds. v. Ent. XXXIII, p. 301.
66. *Amblypodia Antimuta* Felder, Wien. Ent. Mon. IV, p. 233. — Distant, Rhopal. Malay. p. 266; pl. 13, fig. 11.
67. *Amblypodia Metamuta* Hewitson, Illustr. of Diurn. Lep. p. 13; pl. 2, fig. 14 and 15. — Distant, Rhopal. Malay. p. 267; pl. 33, fig. 19.

68. *Amblypodia Lycaenaria* Felder, Wien. Ent. Mon. IV, p. 396; idem, Novara Reise, II, p. 232; pl. 29, fig. 13. — Distant, Rhopal. Malay. p. 269, fig. 79 (woodcut).
69. *Amblypodia Narada* Horsfield, Cat. Lep. Mus. East-Ind. Comp. I, p. 98; pl. 1, fig. 8. — Distant, Rhopal. Malay. p. 276; pl. 21, fig. 23 (♂).
70. *Pieris Panda* Godart, Encycl. Méthod. IX, p. 147. — Boisduval, Spéc. Gén. I, p. 485. — Snell. v. Vollenh., Monogr. des Piérides, p. 44. — Wallace, Trans. Ent. Soc. of London. 4th ser., vol. IV, p. 369 (*Tachyris*).
Pieris sulphurea Snell. v. Voll., l. c. p. 32; pl. 4, fig. 4.
Pieris Nathalia Felder, Wien. Ent. Mon. VI, p. 285.
Tachyris Nathalia Wallace, l. c. p. 369.
Saletara Nathalia Distant, Rhopal. Malay. p. 317; pl. 26, fig. 1 and 2 (♂, ♀).
71. *Cathaemia haemorrhoea* Snell. v. Voll., Monogr. des Piérides. p. 10; pl. 2, fig. 5.
 Var. *aurago* Snellen, Tijdschr. v. Entom. XXXIII, p. 303.
72. *Terias Hecabe* Linn. — Cram., Uitl. Kap. II, pl. 124, fig. B, C.
73. *Callidryas Chryseis* Drury, Illustr. Exot. Entom. I, pl. 12, fig. 3 and 4. — Distant, Rhopal. Malay. p. 300; pl. 25, fig. 1 and 2, pl. 26, fig. 20 ♀ var.
Papilio Alcyone Cram., Uitl. Kap. I, p. 89; pl. 58, fig. A, C.
Callidryas Pyranthe Snell. v. Voll., Monogr. des Piérides, p. 59.
74. *Papilio Polytes* Linn., Mus. Lud. Ulr. p. 186. — Cram., Uitl. Kap. III, p. 129; pl. 265, fig. A, C.
Papilio Pammon Linn., l. c. p. 189. — Cram., l. c. II, p. 169; pl. 141, fig. B.
Papilio Theseus Cram., l. c. II, p. 128; pl. 180,
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- fig. B. — Wallace, Trans. Linn. Soc. of London, XXV, p. 52; pl. 2, fig. 2, 4 and 7.
75. *Papilio Helenus* Linn., Mus. Lud. Ulr. p. 185. — Cram., Uitl. Kap. II, p. 90; pl. 153, fig. A, B. *Papilio Iswara* White, Entom. I, p. 340. — Distant, Rhopal. Malay. p. 344; pl. 30, fig. 1 and 2.
76. *Papilio Memnon* Linn., Mus. Lud. Ulr. p. 193. *Papilio Agenor* Linn., l. c. p. 194. — Distant, Rhopal. Malay. p. 339; pl. 29, fig. 1 (♀).
77. *Papilio Sarpedon* Linn., Mus. Lud. Ulr. p. 196. — Distant, Rhopal. Malay. p. 359; pl. 32, fig. 6.
78. *Papilio Evemon* Boisduval, Spéc. Gén. I, p. 234. — Distant, Rhopal. Malay. p. 360; pl. 32, fig. 1.
- 78a. *Papilio Agamemnon* Linn., Mus. Lud. Ulr. p. 202. — Distant, Rhopal. Malay. p. 363; pl. 32, fig. 7.
- Papilio Aegistus* Cram., Uitl. Kap. II, pl. 106, fig. C, D.
79. *Hesperia Hyela* Hewitson, Descr. Hesper. p. 23. — Plötz, Stett. Ent. Zeit. 1882, p. 322. *Pirdana Hyela* Distant, Rhopal. Malay. p. 376; pl. 35, fig. 6 (♀).
80. *Tagiades Gana* Moore, Proc. Zool. Soc. of London, 1865, p. 780. — Plötz, Jahresber. Nassaui. Vereins. Jahrg. 37 (1884), p. 36. — Distant, Rhopal. Malay. p. 388; pl. 34, fig. 2. *Tagiades Atticus* var. *Caligana* Distant, Rhopal. Malay. p. 387; pl. 34, fig. 6.
81. *Tagiades Folus* Cram., Uitl. Kap. I, p. 118; pl. 74, fig. F. — Plötz, Jahresber. Nassaui. Vereins. Jahrg. 37 (1884), p. 55. *Udaspes Folus* Distant, Rhopal. Malay. p. 398; pl. 34, fig. 3.
82. *Ismene Chromus* Cram., Uitl. Kap. III, p. 163; pl. 284, fig. E. — Plötz, Stett. Ent. Zeit. 1884, p. 57, n°. 19.

- Ismene Chabrona* Plötz, Stett. Ent. Zeit. 1884, p. 56, n°. 16.
- Ismene Contempta* Plötz, Stett. Ent. Zeit. 1884, p. 56, n°. 17.
- Ismene Vitta* Butler, Trans. Linn. Soc. of London. 2nd ser., vol. I, p. 554. — Plötz, Stett. Ent. Zeit. 1884, p. 57, n°. 18.
- Hasora Vitta* Distant, Rhopal. Malay. p. 375; pl. 35, fig. 4.
- Ismene Malayana* Felder, Wien. Ent. Mon. IV, p. 401; idem, Novara Reise, pl. 72, fig. 15. — Plötz, Stett. Ent. Zeit. 1884, p. 57, n°. 20.
- Choaspes Malayana* Distant, Rhopal. Malay. p. 373; pl. 35, fig. 2.
83. *Chalcosia Eusemioïdes* Felder, Novara Reise, II, 2, pl. 83, fig. 10.
84. *Chalcosia Metachloros* Moore, Cat. Lep. Mus. E.-I. Comp. II, p. 321; pl. 8a, fig. 4, 4a (♂, ♀).
85. *Chalcosia analis*, nov. spec. Snellen, Tijdschr. v. Entom. XXXIII, p. 307; pl. 12, fig. 2 (♀).
86. *Hypsa Dama* Fabr., Spec. Ins. II, p. 216; idem, Ent. Syst. III, 2, p. 29. — Snellen, Tijdschr. v. Entom. XXXI, p. 139.
87. *Pseudoblabe bifasciata* Felder, Novara Reise. II, 2, pl. 106, fig. 11 (♀). — Snellen, in Midden-Sumatra. Lepid. p. 36.
- Padenia transversa* Moore, Lepid. of Ceylon, VI, p. 59; pl. 103, fig. 1 (♂).
88. *Birnara nubila* Butler, Trans. Linn. Soc. of London. 2nd ser., vol. I, p. 560. — Tijdschr. v. Entom. XXXIII, pl. 12, fig. 3.
89. *Macroglossa rectifascia* Felder, Novara Reise, II, 2, pl. 75, fig. 7. — Boisduval, Suites à Buffon, Hétér. I, p. 353. — Moore, Lepid. of Ceylon. V, p. 27; pl. 90, fig. 2.
90. *Nyctipao crepuscularis* Linn. — Guenée, Suites à Buffon. Noct. III, p. 182.

91. *Nyctalemon Patroclus* Linn., Mus. Lud. Ulr.
p. 204. — Guenée, Suites à Buffon, Uran. et
Phalén. I, p. 15.
Nyctalemon docile Butler, Godman, Salvin and Druce,
Proc. Zool. Soc. of London, 1878, p. 642.
92. *Urapteryx Crocopterata* Kollar, in von Hügel's
Kashmir. p. 483. — Guenée, Suites à Buffon,
Uran. et Phalén. I, p. 433.
Urapteryx praetoraria Felder & Rogenh., Novara
Reise, II, 2, pl. 122, fig. 13.
Thinopteryx nebulosa Butler, Illustr. VI, p. 51;
pl. 113, fig. 8.
93. *Hazis Bellonaria* Guenée, Suites à Buffon, Uran.
et Phalén. II, p. 193; pl. 18, fig. 1.
Euschema subrepleta Butler, Illustr. I, p. 57; pl. 14,
fig. 4.
Euschema Bellonaria Dewitz, Verh. Leop. Carol.
Akad. 44, p. 267; pl. 9, fig. 10, 10a, b.
Euschema Ares Weymer, Stett. Ent. Zeit. 1885,
p. 279; pl. 2, fig. 9.
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NOTE XIII.

DESCRIPTION D'UN CURCULIONIDE NOUVEAU

PAR

W. ROELOFS.

Eugithopus elegans, n. sp.

(Planche 8, fig. 5).

D'une forme ovale, analogue à celle de *Poteriophorus vittatus* Gylh.; noir, couvert d'un enduit brun-olive plus ou moins foncé; orné de taches blanches en dessus; dessous d'un blanc-jaunâtre.

♂. Long. 16 à 17 mill., rostr. excl. — Rostre médiocrement courbé, plus épais à la base jusqu'à l'insertion des antennes, finement ponctué à l'exception de l'extrémité, muni d'un point imprimé entre les yeux. Tête finement ponctuée.

Prothorax un peu arrondi sur les côtés et plus large que chez *P. vittatus*, obsolètement ponctué, orné de deux bandes d'un blanc-jaunâtre, plus étroites vers leur milieu; une bande de la même couleur, s'effaçant en avant, se trouve un peu plus bas que l'épaule et sur les côtés se voit une autre bande assez large, séparée par une bande brun-olive, de la couleur blanc-jaunâtre du prosternum. Ecusson en triangle allongé, blanc-jaunâtre.

Elytres assez larges, subarrondies au bout, avec des stries faiblement ponctuées. Le tour de l'écusson est blanc-jaunâtre et cette couleur se prolonge un peu sur la suture. La même teinte forme les taches suivantes: une de forme carrée un peu irrégulière sur la partie antérieure des élytres, une tache transversale, ou bande, devenant plus étroite vers la suture, derrière le milieu, un petit trait au bout de la suture et un autre près du bout du 5e intervalle.

Dessous d'un blanc-jaunâtre, peu densément ponctué, avec une ponctuation plus serrée sur l'extrémité de l'abdomen et les côtés de ses segments. Des taches brun-olives se voient sur le mésosternum, sur les côtés du métasternum et les côtés des trois derniers segments de l'abdomen. Les pattes sont d'un blanc-jaunâtre, tirant par place sur le brun-olive; le mucro des jambes et les tarses sont noirs. Sur les jambes se voient de faibles lignes pilifères et sur leur tranche intérieure deux rangées de cils jaunâtres.

Le pygidium, brun-olive, est densément ponctué et porte une carène peu élevée au milieu.

♀. Long. 20 mill., rostr. excl. — Avec la forme plus large commune aux femelles l'individu que j'ai sous les yeux, présente les caractères sexuels suivants:

Le rostre, plus long et plus gros que celui du mâle, porte à sa base un point imprimé, séparant deux tubercules peu élevés; il garde à peu près la même grosseur jusqu'au bout; il est fortement ponctué, pourvu d'une rainure latérale et de deux rangées de petits tubercules et de poils en dessous.

Le métasternum est évasé au milieu. Le premier segment de l'abdomen est aplati, le pygidium plus arrondi et plus convexe que celui du mâle et n'a point de carène au milieu.

Le prothorax, le dessous de l'insecte et les pattes sont couverts de pubescence.

Davao, Mindanao, îles Philippines. Deux ♂ et une ♀ provenant du Dr. Platen. — Collection Neervoort van de Poll.

L'espèce doit faire partie du genre *Eugithopus* Chevrolat (Ann. Soc. Ent. France. 1882. p. 576), que l'auteur a formé pour quelques espèces voisines de *Poteriophorus*, et dans lequel il fait également entrer une ancienne espèce que Schönherr avait placée dans ce genre: *P. vittatus* de Gyllenhal.

La Haye, Mars 1891.

NOTE XIV.

A NEW GENUS OF CALANDRINAE

CHARACTERIZED BY

C. RITSEMA Cz.

Having received from Mr. A. L. van Hasselt of Padang Sidempoean, among some other interesting beetles from Sipirok (North West Sumatra), a couple of a beautiful Calandrid of the group Rhynchophoridae, viz. *Macrocheirus spectabilis* Dohrn, I carefully examined the materials of this group in the Leyden Museum, and this examination convinced me of the necessity of dividing Schönherr's genus *Cyrtotrachelus* in two genera.

The following table will clearly show the distinctive characteristics of the genera of the first division of Lacordaire's group Rhynchophorides (Genera des Coléoptères. Tom. VII. p. 271):

- a. Elytra distinctly narrowing backward, conjointly emarginate at the end.
- b. Anterior coxae rather widely separated.
- c. Joints of the funiculus slender, its 2nd joint much longer than the 1st. Rostrum curved. Scutellum elongate lanceolate. The metasternum very strongly convex in its anterior half. — ♂. Anterior tibiae fringed with long hairs at the under margin of their apical half.

MACROCHEIRUS Schönh.

- cc. Joints of the funiculus not or but little longer than broad, its 1st and 2nd joints about equal in length to each other. Rostrum straight. Scutellum acutely triangular with concave sides. The metasternum not

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strongly convex. — ♂. Anterior tibiae fringed with long hairs all along their under margin.

* Elytra with a strong sutural spine at the end. — ♂. Anterior legs very elongate, their femora strongly curved near the base. The abdominal segments simple. ROELOFSIA nov. gen.

** Elytra with a very minute sutural spine. — ♂. Anterior legs but slightly elongate, their femora straight or nearly so. The centre of the 1st, 2nd and last abdominal segment provided with shallow impressions which bear short bristles. CYRTOTRACHELUS Schönh.

bb. Anterior coxae approximate. OTIDOGNATHUS Lacord.

aa. Elytra nearly parallel, conjointly truncate or hardly emarginate at the end. PROTOCERIUS Schönh.

The type of the genus *Macrocheirus* is *M. praeior* Gyll. from Java¹⁾, and up to now two other species of this genus have been described, viz. *M. spectabilis* Dohrn (Stett. Entom. Zeit. 1883. p. 362 and 397) from Nias and West Sumatra, and the allied *M. herveyi* Waterh. (Ann. and Mag. of Nat. Hist. (5) vol. XIX. 1887. p. 295) from Malacca. — The specimen described by Dohrn as being a male, no doubt belongs to the female sex according to the furrow on the sides of the rostrum and the triangular pygidium, whereas no mention is made of the two rows of crenulations on the rostrum nor of the fringe of long hairs on the under margin of the apical half of the front-tibiae, which are very conspicuous characteristics of the male sex. In the genus *Macrocheirus* the penultimate joint of the tarsi is nearly circular (the sides strongly and regularly rounded), in *Roelofsia* and in *Cyrtotrachelus* it is triangular (the sides straight).

The type of the genus *Roelofsia* n. is *Cyrtotrachelus Buquetii* Guér. from Bombay, and with this *Cyrtotrachelus lux* Boh. from Assam is congeneric. The male of a third

1) Perhaps *Curculio* (*Calandra*) *longipes* Drury, a species unknown to me, will prove to belong likewise to this genus.

species of this genus, originating from Cochin China, is described by Fairmaire under the name of *Cyrtotrachelus dichrous* (Ann. Soc. Ent. de France. 1878. p. 273). The specimen, however, described by him as the female of this species, no doubt will prove to be a male of another genus, judging from the rostrum, this being described as slightly denticulate on the margins, and having before the extremity a compressed triangular tubercle.

The type of the genus *Cyrtotrachelus* Schönh. is *Curculio longimanus* F. (= *longipes* F.) from China, of which a presumed variety occurs in the Sunda Islands. A second species of this genus is *Calandra lar* Erichs. from Manilla, whereas two other species have been described by Chevrolat, viz. *C. rufopectinipes* from the Andaman Islands, and *C. obscuriceps* from Ceylon (Ann. Soc. Ent. de France. 1882. p. 556).

The type of the genus *Otidognathus* Lacord. (= *Litorhynchus* Schönh. nec Macquart) is *Litorhynchus Westermanni* Bohem. from Assam. Moreover the following species seem to belong to this genus:

quadrifasciatus Buq., Guér. Icon. Règne anim. Ins. p.

177 (*Cyrtotrachelus*). Java.

myrmidon Buq., l. c. (*Cyrtotrachelus*). Java.

Jansoni Roel., Ann. Soc. Ent. de Belgique.

Tom. XVIII (1875). p. 186 Japan.

Davidis Fairm., Ann. Soc. Ent. de France.

1878. p. 127 (*Cyrtotrachelus*). China centr.

elegans Fairm., l. c. p. 128, note (*Cyrtotrachelus*) Manilla.

nigropictus Fairm., l. c. p. 128 China centr.

subfasciatus Chevrol., Ann. Soc. Ent. de

France. 1882. Bull. p. 111 Sylhet.

bifasciatus Chevrol., l. c. Sylhet.

rubriceps Chevrol., l. c. p. 112 Sylhet.

decemstriatus Chevrol., l. c. p. 557. Sylhet.

comptus Pasc., Ann. a. Mag. Nat. Hist. (5)

vol. 19 (1887). p. 373; pl. 11, f. 6 Cambodia.

celatus Pasc., l. c. p. 374. Cambodia.

The type of the genus *Protocerius* Schönh. is *Calandra colossus* Fabr. from Java. Besides this, and *molossus* Oliv., *grandis* Guér. and *laetus* Voll. (see Munich Catalogue. VIII. p. 2641), the following species have been described:

fervidus Pasc., Journ. Linn. Soc. XI (1871).

p. 216 Kumaon.

purpuratus Dohrn, Stett. Ent. Zeit. 1881. p. 447. Sarawak.

marginatus Chevrol., Ann. Soc. Ent. de France.

1882. p. 558 Java.

angustipennis Chevrol., l. c. p. 559. Sylhet.

aemulus Dohrn, Stett. Ent. Zeit. 1882. p. 458;

1883. p. 159 Nias.

Leyden Museum, April 1891.

NOTE XV.

A NEW SPECIES OF RHYNCHOPHORUS

DESCRIBED BY

C. RITSEMA Cz.

Rhynchophorus Swierstrae, n. sp. ♂.

Length (without rostrum) 41 mm., that of the rostrum 11 mm.; breadth at the shoulders 17 mm.

Pronotum and elytra dull brown, the former narrowly margined with black and provided on the middle of the disk with an elongate ovate black patch which is divided in a longitudinal direction by a brown stripe; the elytra likewise are narrowly margined with black, which colour widens out on the shoulders and just behind the middle of the lateral margin; the scutellum and a narrow edge along the suture black; the pygidium dull black, fringed at the tip with fulvous hairs; the head, rostrum and antennae as well as the under surface, glossy black; the rostrum above with a brown spot at the extreme base, and the basal abdominal segment with a brown spot at the sides; the legs are glossy; the coxae, trochanters and tarsi are black; the femora and tibiae ferruginous, black at base and tip and along the under surface, which is moreover densely fringed with fulvous hairs, which are short on the posterior femora.

The rostrum is slightly waved on the under surface, strongly so on the upper surface which makes it thinnest about the middle; it has strong punctures in front of the usual interocular pit, then it becomes strongly scabrous;

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this scabrous portion bears some very short and stiff bristles and some black granulations which, towards the end of the rostrum, are arranged in two convergent rows and are placed on a strongly raised compressed ridge ending a little before the apex of the rostrum in an obtusely pointed tooth which slopes towards the extreme tip; a faint furrow is to be seen at about the middle of the sides. The club of the antennae is much less transverse than it is in the male of *Rh. serrirostris* Fabr.

The pronotum is more strongly convex than in *serrirostris*; the sides are regularly rounded, slightly narrowing towards the constricted front-portion; the basal lobe is more deeply sinuated and its median portion distinctly more prolonged backwards. The scutellum is elongate lanceolate.

The elytra are more elongate and more narrowing towards the end than in *serrirostris*, in other respects they are similar. The pygidium is triangular with rounded tip, and it is covered with distinct punctures which are not very close together.

The undersurface is laterally covered with very minute granulations which are placed close together but become sparser and sparser on the abdomen; the deflexed lateral margins of the apical ventral segment are strongly punctured, and fringed at the end; the apex itself truncate in a sinuate manner and provided with a strong and dense punctuation; along the middle the under surface is smooth showing only a few punctures; the metasternum and basal ventral segment have a shallow furrow along the middle.

The legs are distantly punctured, the femora notched on the under surface near to the tip, the under surface of the anterior femora moreover provided on the inside with a compressed ridge which is delicately rugose; the tibiae are slightly dilated on the under surface near to the base which is caused by a ridge which has a thickened margin. The tarsi are spongy beneath.

Hab. Ambarawa: East Java (Bernelot Moens). — A single male specimen in the Leyden Museum.

I have dedicated this species, which belongs to Chevrolat's genus *Omotemnus* ¹⁾, to the late K. N. Swierstra, the well-known Conservator of the Entomological Collections of the Zoological Garden at Amsterdam, who died on April 18th, aged 50 years.

Rhynchophorus Swierstrae is a narrower species than *Rh. serrirostris* but especially distinct from it by the waved and keeled rostrum, by the much less transverse antennal club, by the more convex pronotum and its otherwise shaped basal lobe, by the keeled anterior femora, etc.

Leyden Museum, May 1891.

1) Annales de la Société entomologique de France. 1882. p. 559.

NOTE XVI.

TWO SYNONYMICAL REMARKS ABOUT
CURCULIONIDAE

BY

C. RITSEMA Cz.

1. *Macropterus Verlorenii* S. v. V. (Tijdschr. v. Entom. XIV (1871). p. 101; pl. 4, fig. 1) from Timor = *Cercophorus floccosus* Chevrol. (Ann. Soc. Ent. France. 1880. p. 259, fig.) from the same island.

2. *Rhynchophorus (Calandra) rubiginus* Wiedem. (Mag. Zool. I, 3. 1819. p. 174) and Gyllenhal (Schönh., Gen. Curc. IV. p. 824) = *Rhynchophorus elegans* Guér. (Icon. Règne anim. Ins. p. 176; 1843). — Notwithstanding Chevrolat (Ann. Soc. Ent. France. 1882. p. 564) created a new genus, viz. *Paratasis*, for the reception of *Rhynchophorus rubiginus* (erroneously called by him *rubiginosus*), its synonym *elegans* occurs as the first Indian species in the genus *Rhynchophorus* (l. c. p. 560).

Leyden Museum, April 1891.

NOTE XVII.
ON THREE EASTERN MOLLUSKS

BY

M. M. SCHEPMAN.

Tritonidea undulata, n. sp.

(Plate 9, fig. 1).

Shell fusiformly ovate, yellowish, with brown spiral ridges. Whorls about 6, the apical ones, which are slightly eroded, appear smooth, the rest rather convex, depressed near the sutures, vertically ribbed with large swollen ribs of which there are from 10 to 14 on the penultimate whorl, and spirally ridged with 4 or 5 waved ridges on the upper whorls, with finer intermediate ones. On the last whorl, the ribs and waves become obsolete about the periphery; this whorl is encircled with a large number of spiral ridges of which from 10 to 12 form conspicuous brown lirae, with from 1 to 6 intermediate ones. Aperture occupying more than half the length of the entire shell, ovate, pale blue within, lip thickened exteriorly, internally with about 10 ridges forming small denticulations towards the lip. Columella callous, slightly excavated above, towards the middle with a few small tubercles on the left margin and a more conspicuous one near the upper part of the aperture. Canal short, oblique.

Length 26, diam. 16, length of apert. with canal 14 mill.

Hab. Japan, collected by von Siebold (Leyden Museum).

This species approaches in form *T. fumosa* Dillw. = *proteus* Reeve, in colour *T. undosa* Linn., but differs from both in form and sculpture. *T. subrubiginosa* Smith should

Notes from the Leyden Museum, Vol. XIII.

be, after the description, still more remote. The specimens vary slightly in the thickness of the ridges, which give the shell a more or less dark appearance.

Canidia Helena Meder,
var. *rotundicosta* Schepman.

Shell narrower than in the type, with the last whorl smaller. Colour much darker, greenish olive brown, costae more broadly rounded, with rather narrow intermediate spaces.

Hab. Java, collected by Groen (Leyden Museum).

Typical specimens of this variety might be considered as a new species, but the character of the costae is rather variable, so as to pass into the typical form, with narrow flattened ribs. The specimens vary in form, some of them being extremely narrow, such specimens may be named: forma angustior. They are all darker in colour than the type, which is more decidedly greenish.

Nassa javana, n. sp.

(Plate 9, fig. 2).

Shell acuminate ovate, whitish, marbled with red-brown markings, showing a tendency to form a band near the middle of the last whorl and a second one towards the base, where the brown colour becomes more confluent, and with an articulated band of blue brown blotches near the sutures. Whorls 10, spire acuminate, 3 apical whorls smooth, the 5 subsequent ones rather flat, crossed by numerous ribs and spiral striae; penultimate and ultimate whorls rather inflated, nearly smooth, with only 2 or 3 striae near the suture and 8 near the base; sutures distinct, irregular; aperture oval, white, columella callous, with two plicae near the upper angle of the aperture, and terminating with a sharp curved spine, with a few plicae or granules above it. Outer lip with a thick varix externally and a few folds behind it; edge sharp, with 7 denticles

near the base, thickened and ridged within, with 13 strong ridges. Canal rather broad, slightly turned backwards.

Length 23, breadth $12\frac{1}{2}$, length of aperture 10 mill.

Hab. Southern Java: Tjilatjap, collected by Mr. Overdijk (Leyden Museum).

This species resembles *N. picta* Dunker in colour, but may be distinguished from that species by the sculpture of the upper whorls, by the denticles of the outer lip and by the larger size; in sculpture it resembles certain varieties of *N. mutabilis* Linn., but it is sufficiently distinct in all other respects.

Rhoon near Rotterdam, May 1891.

N.B. Besides *Tritonidea undulata* Schepm. (fig. 1) and *Nassa javana* Schepm. (fig. 2) the two following species, described in the „Notes” at an earlier date, are figured on Plate 9.

Fig. 3. *Fusus Sieboldi* Schepm., from Japan (Notes Leyden Museum. XIII (1891) p. 62).

Fig. 4. *Oliva Semmelinki* Schepm., from the Strait of Larantoeka between Flores and Adonare (Notes Leyden Museum. XII (1890) p. 196).

NOTE XVIII.
A NEW SPECIES OF LATIRUS

DESCRIBED BY

J. C. MELVILL.

Latirus Eppi, sp. n.

L. testa ovato-fusiformi, crassa, fulco-brunnea, anfractibus levibus, longitudinaliter costatis, nitentibus, transversim obscure jilo-liratis, liris ad suturas distinctioribus, canali subproducto, spiraliter lirato, aperturæ fauce sulcata, albescente, columella quadriplicata, alba. — Long. 24 mill., lat. 10 mill.

Hab. Insula Curaçao (Dr. C. Epp).

This very interesting addition to the genus is at present unique and forming part of the collection of the Leyden Museum. It has been kindly forwarded me by Mr. M. M. Schepman, of Rhoon near Rotterdam, with the request that I would describe it, at the same time wishing that it should bear the name of its discoverer. The nearest approximations to this species are undoubtedly *L. castaneus* (Reeve) and *acuminatus* (Kiener) from both of which it can easily be differentiated by its small size, and other reasons. This specimen is full-grown, and slightly worn, the transverse liræ would in a younger specimen be regularly distributed over every portion of the whorls.

Dr. Epp also found at the same locality an interesting well coloured but small variety of *Latirus distinctus* (A. Adams), a species of rare occurrence, and which has not been figured. I am giving a representation from a large typical specimen in my »Historical account of the genus *Latirus*."

Prestwich, Manchester, March 1891.

NOTE XIX.

POLYCTESIS IGORROTA,
NOVA SPECIES BUPRESTIDARUM

BY

K. M. HELLER.

Statura habitusque P. rhoidis, cuprea, elytris viridi-cyaneis, maculis flavis ornatis; una macula oblonga prope scutellum, una curvata circa angulum humeralem, una in medio prope suturam, una transversa ante apicem et pars media marginis lateralis flava; elytris punctato-striatis, interstitiis primis, secundis et tertiis antice obscure subtiliterque, interstitiis reliquis distincte remote striato-punctatis; scutello punctiforme subtransverso; thorace lateribus late flavo-marginato; segmentis abdominis utrinque flavo-guttatis. Long. 12—14 mm.

Habitat in insula Luzon.

Agreeing in size and shape with *Polycetes rhois* Mars., but differing in colour and sculpture, and consequently easily distinguishable.

Coppery, elytra dark blue-green, each of them with the following yellow spots: an oblong spot near the scutellum, a c-shaped one around the shoulder, one about the middle of the length near the suture, and an undulate transverse band at the base of the posterior third.

The spots seem to be variable in form, as one of my two specimens shows the hinder part of the humeral spot widened out, so as to form a circular blot, and the transverse band, which extends over eight interstices, simply curved; the other specimen has an additional small longitudinal stripe inside of the shoulder-protuberance, and the transverse undulate band recurved in front near the suture.

The sides of the thorax are rather broadly margined with yellow.

Underside coppery, the meso- and metasternum as well as the abdominal segments with a yellow spot on the sides.

Sculpture similar to that of *rhois*, but finer, with exception however of the head, where it is as coarse if not slightly coarser. Thorax very finely punctured along the middle of the disk, coarsely so on the sides where the punctures are separated by narrow transverse wrinkles; along the middle the thorax is shallowly impressed, the impression deeper and better limited at the base; moreover a rather indistinct basal impression is present near the lateral angles.

Sides of elytra straight in their basal fourth, then sinuate, and furnished at the end of the straight portion with a small tooth; elytra punctate-striate, the striae behind deeper and broader, interstices sparingly striate-punctate, the punctures in the anterior half of the first, second and third interstices almost completely obliterated, those of the other interstices becoming deeper and closer towards the apex and sides. Outer margin of elytra from the middle to the tip finely serrulate, apex of each truncate and ending in four teeth, the outermost of which stretches beyond the sutural one. — Sutural margin behind distinctly raised.

The whole insect is thinly sprinkled with short white hairs.

P. igorrota may be distinguished from *P. foveicollis* Fairm. from Cambodia (Ann. Soc. Ent. France, 1888. p. 344—45) by its smaller size, by the spotted elytra, by the fine interstitial punctures, etc. etc.

This interesting new species from the Philippine Islands, and *P. rhois* Mars. which occurs in Egypt, Cyprus and Syria, are, with *P. foveicollis* Fairm. the only known representatives of this genus. It was discovered in the North of Luzon near Vigan by Dr. R. Schadenberg, to whom the Royal Dresden Museum is indebted for two specimens of it.

Royal Zoological Museum, Dresden, June 1891.

NOTE XX.

CONTRIBUTIONS TO THE KNOWLEDGE OF
THE FAMILY BRENTHIDÆ

BY

Dr. A. SENNA.VI¹⁾.

Descriptions of two new species and Remarks on the female of *Achrionota bilineata* Pascoe and of *Prophthalmus planipennis* Pascoe hitherto undescribed.

Orychodes Ritsemæ, n. sp.

Castaneo-brunneus; capite nitido, postice mutico; rostro prothorace paulo brevior, supra inter antennis et parte basali sulcato, ante antennis planiusculo, utrinque carinula denticulata instructo; prothorace conico, nitidissimo, impunctato; elytris fortiter punctato-striatis, interstitiis angustis, lineolis flavis exornatis. — Long. 13 mill., latit. thoracis $2\frac{1}{3}$ mill., ♂.

Hab. Malacca. (Coll. Senna).

Entirely of a chestnut-brown, the legs and the elytra slightly paler. The head is moderately short, rounded above, shining, impunctate, with a very fine longitudinal impression between the eyes, and the posterior angles without any spine; at the base it is truncated. Eyes rather prominent, olive-greenish. Rostrum shorter than the protho-

1) See for the 1st to 5th Contributions: *Bullettino d. Soc. Entom. Italiana*, Anno XXI, pp. 33—38 and 101—109.

rax, thickish at the base and furrowed, slightly broader to the insertion of the antennæ and canaliculate, beyond these its sides are parallel and with a raised line of small teeth; beneath the apical portion is almost smooth and glossy, while the portion between the antennæ has a longitudinal keel and the basal part is deeply punctured. Antennæ distinctly longer than the prothorax and the head with the basal portion of the rostrum taken together; the first joint stout, clavate and as long as the 2nd and 3rd joints taken together, which are very short; the remainder subcylindrical, pubescent and almost equal in size; the 11th is the longest of all and obtusely pointed at the tip.

Prothorax about two third the total length of the elytra, conical, narrower anteriorly than at the base, widest behind the middle, with the sides rounded and the base transversely furrowed; above brown, the apical margin blackish, impunctate, very shining.

The elytra are about as long as the prothorax and the head with the basal portion of the rostrum taken together, broader than the base of the prothorax, the shoulders are rounded, the sides subparallel, but towards the apex attenuated and at the apex emarginate. The elytra are punctate-striate; the 1st furrow near the suture impunctate, the 2nd and 3rd with small punctures, the remainder, which are also broader, deeply and regularly punctate, with the punctures approximate and the interstices convex, raised. The maculation of the elytra is the following: the 3rd interstice near the suture has a basal line covering a space equal to five punctures; behind the middle, a short line and another near the apex; the 4th interstice has a line equal to three punctures towards the middle, and a shorter line behind the middle; the 5th has a line before and another behind the middle; the 6th has two lines as the 5th; the 8th a line before the middle; the 9th has a line before the middle and another near the apex.

The undersurface of the body is brown-red, impunctate, shining; the metasternum and the two basal segments of

the abdomen are hardly furrowed; the last abdominal segment is fringed with golden hairs.

The anterior legs stout, with the tibiæ angularly dilated in the middle, all the femora are toothed, the tarsi pubescent.

This *Orychodes* belongs to the group formed by *O. lineolatus* Kirsch ¹⁾, *insignis* Lewis ²⁾ and *pictus* Pascoe ³⁾, which have the head posteriorly unspined; it differs from *O. lineolatus*, by the rostrum and the lines on the elytra, from *O. insignis* and *pictus*, by the elytra being differently punctured and spotted.

I have much pleasure in dedicating this species to Mr. Ritsema, as a slight sign of friendship.

Achrionota bilineata Pascoe⁴⁾.

♀. Elongated, narrow, blackish, opaque; covered here and there with yellow-whitish scales. The apical portion of the rostrum is brown, shining, the neck pitchy, the legs ferruginous brown. The head is moderately elongate, deeply separated from the neck, with a shallow groove in the middle extending to the basal portion of the rostrum; above punctured, with a few scales at the sides, beneath almost entirely covered with ochreous scales; the basal portion of the rostrum is as long as the head but more slender, with two longitudinal furrows along the middle and vaguely punctured; the apical half is longer than the head, filiform, impunctate. The antennæ are scarcely longer than the rostrum, nearly filiform, with the first joint as long as the second and third together; the remainder subcylindrical and greyish pubescent with rare blackish hairs; the 11th as long as the basal joint and acuminate at the tip.

1) Mittheilungen a. d. k. zoologischen Museum zu Dresden, I Heft, p. 49. 1875.

2) Journal of Linn. Society, XVII, p. 301. 1883.

3) Journal of Entomology, I, p. 389. 1862.

4) Annals and Magazine of Natural History for November 1872, p. 325.

Prothorax similar in shape to that of the male, elongate, scarcely longer than the basal portion of the rostrum and head taken together, the sides are very convex; it is widest about the middle and strongly contracted at the apex; along the middle furrowed; the longitudinal impression is covered with yellow-whitish scales, forming at the sides two lines which are slightly curved inwards; laterally the scales are scattered here and there, beneath very numerous.

The elytra are as long as $2\frac{1}{2}$ the prothorax, subparallel at the sides; at the apex sinuated and the angles with a spine slightly curved inwards. Above the elytra are regularly subsulcate-punctate and bear along the suture two lines of yellow-whitish scales; moreover minute scales are in the 3rd and 9th furrows at the base and at the apex. Metasternum and the two basal segments of the abdomen ashy, irregularly punctured; the last abdominal segments and the sides have numerous scales. Legs slender, with scattered small yellow-whitish scales.

Length 19 mill., breadth of the prothorax 2 mill.

Hab. Borneo: Sarawak. (My collection).

Prophthalmus planipennis Pascoe ¹⁾.

♀. Black, more or less shining. Head short, transverse, irregularly punctured: the posterior angles moderately produced, rounded, above and beneath at the base emarginate, deeply separated from the neck, the undersurface is roughly punctate, slightly pubescent. Rostrum shorter than the prothorax, the basal portion shorter than the head and furrowed, the apical half filiform, conspicuously curved and furrowed; beneath bisulcate and moderately punctured; antennæ as in the male.

Prothorax similar in shape to that of the male, but less flattened in the middle; shining, rarely subshining. In the elytra, the declivity at the sides, the furrows and

1) Annals and Magazine of Natural History for November 1872, p. 322.

interstices are as in the ♂, but I have in my collection a female with the elytra and the prothorax proportionately narrower; the second yellow line on the elytra is sometimes interrupted in the middle.

The undersurface of the body shining; metasternum and the two basal segments of the abdomen obsoletely canaliculate, the apical segment margined with fine hairs. Femora toothed, internally the basal half pubescent.

Length 13 to 21 mill., breadth of the prothorax $2\frac{1}{2}$ to $4\frac{1}{2}$ mill.

Hab. Malacca and Batchian. (My collection).

Miolispa Mariæ, n. sp.

Robusta, nigro-ænea, nitida, capite thoraceque sulcatis, crebre punctatis, elytris nigro-brunneis, prope suturam vitta ferruginea, apicibus castaneo marginatis, dorso striato-punctatis, lateribus subcancellatis; pedibus nigro-brunneis. — Long. $8\frac{1}{2}$ mill., latit. thoracis $1\frac{3}{4}$ mill., ♂.

Hab. Penang. (Coll. Senna).

This fine and conspicuous species is allied to *M. puncticollis* Boisd. ¹⁾ but easily distinguishable by its robustness, by the head and the apical portion of the prothorax clearly punctured, moreover by the shape of the prothorax. Head nearly square, slightly longer than broad, convex on the vertex, in the middle furrowed, at the base strongly emarginate, irregularly punctured; between the eyes trisulcate, the lateral impressions broader than the central one; beneath convex, shining, very finely punctured. Rostrum robust, as long as $1\frac{1}{3}$ the head, moderately curved; the basal portion as long as the apical one, trisulcate, the sides parallel; the anterior portion widened at the apex which is smooth, emarginate and finely punctured; the intermediate furrow extending almost to the end of the rostrum;

1) Voyage de l'Âstrolabe, II, p. 312; sub *Orychodes* in Gemminger and von Harold, Catal. Coleopt.

mandibles small, exerted; beneath with a distinct longitudinal keel in the middle, near the antennæ and in the apical half distinctly punctured. Antennæ short, not so long as head and prothorax taken together, the basal joint short, equal in length to the 2nd and 3rd together, the 2nd joint shaped as in *M. suturalis*, the 3rd, 4th and 5th moniliform; the 6th, 7th and 8th transverse, the remainder three joints conspicuously larger and perfoliate.

Prothorax nearly as long as broad, ovate, near the apex angularly contracted, with the sides rounded and the base transversely furrowed; above and at the sides irregularly but densely punctate, the punctures very numerous laterally.

The elytra are sinuate at the base, as long as twice the prothorax and equal in broadness; the sides are subparallel, near the apex attenuated, the apex is truncated with the marginal portion turned upward; above punctate-striate, the inner furrow impunctate, the 2nd and 3rd near the suture punctured, the remainder uniformly and deeply punctate, the interstices raised, convex; dark-brown, the 3rd interstice ferruginous, the portion along the suture ferruginous-brown, the apical margin red-brown.

The undersurface of the body is dark-brown, shining; metasternum densely punctate and with a central furrow; the two basal segments of the abdomen with a few very fine punctures, the second only sulcate in the middle; the remainder segments short and sloping rapidly. Legs short, dark-brown, the femora are clavate, brown-red in the middle, finely punctured, at the apex densely punctate; tibiæ short, strongly punctured, dark brown-red in the middle, tarsi pubescent.

I have dedicated this new species to Miss Maria Magnaghi.

Pavia. Laboratory of Zoology of the University, June 1891.

NOTE XXI.

GENRE NOUVEAU ET ESPÈCES NOUVELLES DU
GROUPE DES OXYOPISTHEN

DÉCRITS PAR

W. ROELOFS.

Mr. Neervoort van de Poll vient de recevoir parmi des Coléoptères de la côte ouest de l'Afrique, un certain nombre d'espèces du genre *Oxyopisthen* et genres voisins. J'en ai entrepris la description, comme suite aux quelques nouvelles espèces du Musée de Leyde, publiées récemment dans les »Notes''. (Vide antea p. 116).

Notre connaissance du groupe se trouve beaucoup avancée par ces nouvelles espèces; toutes celles qui appartiennent à l'ancien genre *Oxyopisthen* Thomson, ont le prothorax sans prolongement à la base et se rapprochent par cela du *rufofemoratum* de Thomson; toutes ont le faciès habituel du genre et sont plus ou moins parallèles sur les côtés et linéaires, sauf une espèce (*O. scalaris* Roel.) qui est élargie aux épaules des élytres et présente par conséquent une forme plus ovale.

Mr. Aurivillius n'avait connue que le ♂ de son *Haplo-rhynchus Taldai*; Mr. van de Poll vient de recevoir de plus deux individus de l'autre sexe. La connaissance de la ♀ offre un grand intérêt par ses caractères insolites et sa grande différence du ♂.

Le nouveau genre, que je décris sous le nom de *Acherus*, est un des plus curieux dans la série des Curculionides, et offre dans la famille un nouvel exemple de l'absence du dernier et de la forme non bifide de l'avant dernier article

des tarsi. Son rostre, qui se rapproche de celui de la ♀ du *Haplorhynchus Valdani*, est également d'une construction remarquable. Malheureusement nous n'en connaissons jusqu'à présent qu'un des deux sexes (la femelle?) de la seule espèce connue du genre.

Oxyopisthen nitidum, n. sp.

Subparallèle, noir luisant, avec trois taches blanches sur les côtés du corps, élytres transversalement déprimées, striées-punctuées, pygidium horizontal, très pointu. — Long. 13 mill., rostr. excl.

Très voisine du *Büttikoferi* Roel. et de la même taille, d'un noir luisant, rostre et antennes d'un noir-brunâtre, une tache sur le mésosternum devant l'épaule des élytres, une tache allongée sur le métasternum contre le bord de l'élytre, une troisième sur le premier segment de l'abdomen à la même place, blanches.

Rostre de la longueur du prothorax, légèrement arqué, muni d'une ligne obsolète vers la base. Tête à peine punctuée.

Prothorax un peu plus long que large, ses côtés faiblement arrondis, peu rétréci en avant, la base un peu arrondie, son disque un peu déprimé, couvert d'une punctuation grosse et serrée, muni d'une courte et fine ligne imprimée au milieu. Ecusson allongé, ses côtés parallèles, arrondi au bout.

Elytres à peine plus larges que le prothorax, graduellement rétrécies vers le bout, droites sur les côtés, garnies de stries dont les intérieures ont des points confluent, les extérieures des points plus arrondis. Les élytres sont planes, transversalement déprimées derrière la base et offrent deux dépressions vers le milieu.

Le pygidium, subhorizontal, est en triangle aigu, muni d'une carène médiane, finissant en pointe à l'extrémité, comprimé latéralement, ses côtés costiformes; sa punctuation est forte et plus serrée à la base.

Dessous du corps luisant, à peine punctué, extrémité

du dernier segment avec des points assez gros et serrés. Métasternum ayant une impression au bout, ainsi que la base du premier segment de l'abdomen. Le dernier segment porte au bout une impression transversale, l'extrémité du pygidium en dessous en forme de fer de lance.

Les quatre cuisses antérieures ont une petite dent vers le milieu, les postérieures une dent vers le tiers terminal; elles sont un peu sinueuses, courbées vers le haut et atteignent le cinquième segment abdominal.

L'unique individu que j'ai sous les yeux me paraît un ♂ d'après l'insertion des antennes. — L'espèce est très voisine du *Büttikoferi* Roel., elle s'en distingue surtout par les taches blanches sur les côtés du corps; le prothorax est moins densément ponctué, plus rétréci en avant, le pygidium plus comprimé, etc.

Hab. Le Gabon.

Oxyopisthen clavatum, n. sp.

De la forme du *rufofemoratum* Thoms., mais d'une taille plus grande.

Noir luisant; les quatre pattes de devant, sauf l'extrémité des cuisses et les tarses, ainsi que les cuisses postérieures rouges; la massue des antennes, sauf sa tranche terminale, d'un rouge jaunâtre; quelquefois avec des taches blanches sur les côtés du corps. — Long. 16 à 17 mill., rostr. excl.

Rostre de la longueur du prothorax, d'un noir mat, un peu épaissi à sa base, qui porte une faible ligne imprimée; il est muni plus en avant, d'une carène peu élevée. Antennes insérées à sa base, leur scape de la longueur du funicule, la massue grande, d'une forme un peu carrée, sa surface comme ondulée, elle est d'un brun-jaunâtre, son extrémité noire. Tête finement ponctué, avec une impression entre les yeux.

Prothorax déprimé sur le disque, très faiblement arrondi sur les côtés, peu rétréci en avant, sa base faiblement

arrondie; il est garni d'une ponctuation grosse et très serrée vers la base. Une dépression se remarque au dessus des épaules. Ecusson longuement ovale.

Elytres à peine plus larges que le prothorax, droites sur les côtés, rétrécies en arrière, transversalement déprimées derrière la base et au milieu du dos; garnies de stries à points confluent et plus gros dans les stries latérales.

Pygidium déclive selon une ligne courbe, comprimé latéralement et relevé à l'extrémité, qui porte une carène médiane et dont les bords sont un peu élevés. Le pygidium est garni d'une ponctuation très grosse et confluyente vers le bout.

Le métasternum est lisse sur les côtés, ponctué en avant, très lisse dans une excavation en arrière, qui se continue de la même façon sur le premier segment abdominal; le reste de l'abdomen est ponctué.

Les quatre cuisses antérieures ont une petite dent un peu en dessous de leur milieu et sont garnies de poils courts brunâtres de la base jusqu'à cette place. Les cuisses postérieures sont droites, atteignent le pygidium et ont une petite dent près de leur extrémité; des poils les garnissent de la même façon que dans les cuisses antérieures. Les tibias postérieures sont un peu comprimées et triangulairement élargies pas loin de leur base.

Trois individus du Gabon, dont je ne saurais déterminer le sexe et dans lesquels je ne découvre pas de différence sexuelle; dans un des trois on remarque une petite tache blanche sur les côtés du métasternum et une seconde sur les bords du premier segment abdominal; dans un autre individu il ne reste qu'un vestige de la seconde tache; le 3^e n'en a pas du tout. Ces taches paraissent par conséquent peu constantes.

Oxyopisthen suturale, n. sp.

D'une forme plus large et plus ovale que les autres espèces du genre; d'un noir mat, velouté, décoré d'une bande

Notes from the Leyden Museum, Vol. XIII.

blanche latérale sur le prothorax qui se continue sur les côtés du corps, une ligne étroite blanche sur la base du prothorax se continue sur l'écusson et couvre la suture des élytres jusqu'à leur moitié. — Long. 8 à 15 mill., rostr. excl.

Rostre environ de la longueur du prothorax (♂) ou plus long que lui (♀), de la même grosseur partout, peu arqué, d'un noir un peu luisant, avec une ligne imprimée peu marquée à la base. Antennes assez longues, leur scape de la longueur du funicule. Tête obsolètement ponctuée, munie d'une impression allongée entre les yeux.

Prothorax en triangle tronqué, un peu plus long que large; ses côtés très faiblement arrondis, sa base un peu avancée en lobe au dessus de l'écusson, un peu échancrée au dessus de chaque élytre. Il est garni d'une ponctuation superficielle, en grande partie cachée par l'enduit qui le couvre, ses côtés sont décorés d'une bande blanche, s'élargissant en arrière au dessus de l'épaule, une ligne étroite blanche médiane n'atteint pas son bord antérieur et va jusqu'à la base. L'écusson est cordiforme, blanc et finement bordé de noir sur les côtés.

Elytres un peu plus larges que le prothorax, ovales, arrondies au bout, garnies de fines stries ponctuées peu apparentes, décorées sur la suture d'une ligne blanche jusqu'à leur moitié.

Pygidium du mâle court, triangulaire, peu déclive, muni d'une carène médiane et entouré d'un rebord élevé; une ponctuation obsolète se voit sous l'enduit blanc qui le couvre. Le pygidium de la femelle est prolongé dans une pointe obtuse, un peu relevée, et porte une bordure de poils bruns.

Prosternum et côtés du corps d'un noir mat, portant une ponctuation dense, superficielle, remplie d'enduit blanchâtre. Une bande blanche décore les côtés du mésosternum, du métasternum et des premiers segments de l'abdomen, et s'élargit sur les derniers, couvrant l'extrémité. Le milieu du prosternum et du mésosternum sont blancs. Le métasternum est évasé, luisant et ponctué (♂), ou garni d'une pu-

bescence brune (♀); la dépression se continue sur le premier segment abdominal.

La pointe saillante du pygidium de la femelle est garnie en dessous d'une pubescence brune.

Les pattes sont longues et assez faibles, couvertes d'une ponctuation superficielle et remplie d'un enduit blanchâtre, qui couvre plus densément la tranche supérieure des cuisses. Les cuisses droites, inermes, les postérieures atteignent presque le bout du pygidium: les quatre cuisses antérieures sont garnies de poils bruns chez la femelle.

Hab. Le Gabon. — Deux mâles et trois femelles.

Haplorhynchus Valdaui Auriv. ♀.

Mr. Aurivillius a créé et décrit (Entom. Tidskrift, årg. 7 (1886) pag. 95) le genre *Haplorhynchus*, pour une espèce (*Valdaui* Auriv.) dont il n'a connu que le ♂.

Mr. Neervoort van de Poll possède, avec un individu mâle, deux individus femelles de cette espèce. La ♀ diffère beaucoup du ♂, et sa connaissance nécessitera, par cette raison, quelques modifications dans la détermination du genre.

Voici les caractères de la ♀:

Taille très supérieure à celle du ♂ (17 à 18 mill., rostr. excl.). Rostre séparé du front par une légère dépression, très robuste, épaissi à sa base, fortement aminci vers l'extrémité, brusquement courbé et finissant dans un petit prolongement sous la bouche; le rostre est garni en dessous de rangs de brosses raides de couleur brune, laissant un espace libre entre eux et qui s'étendent de la place de l'insertion des antennes (vers son tiers postérieur) jusqu'à l'angle du prolongement au bout, ses côtés portent une rainure s'étendant de l'insertion des antennes jusque près de son extrémité; il est d'un noir velouté, plus ou moins garni d'un enduit blanchâtre.

Le scape des antennes est plus court que chez le ♂ et que le funicule.

Les hanches antérieures sont saillantes, grosses, et pré-

sentent en dessous une tranche aigue, un peu courbée en avant.

Le pygidium est moins pointu que celui du ♂, son impression en dessous ovale, peu profonde.

Deux individus du Gabon.

Les caractères énumérés sont aussi remarquables par eux-mêmes que par leur différence avec ceux de l'autre sexe. La construction du rostre et la forme des hanches antérieures sont surtout dignes de remarque.

La forme de la ♀ et sa grande différence avec le ♂ font du genre *Haplorhynchus* et de l'espèce qui nous occupe, un des Curculionides les plus intéressants.

Acherus, n. g.

Corps étroit, linéaire; rostre légèrement arqué, paraissant, par la courbe plus forte du dessous, comme évasé, garni de brosses de poils sur la tranche inférieure, qui finit en avant par une protubérance triangulaire (♀ ?).

Antennes insérées près de sa base, droites, le scape ayant à peine un quart de leur longueur totale, 1^r article du funicule plus gros que les autres, 2^e plus long que les suivants, partie spongieuse de la massue non saillante.

Prothorax long, faiblement arrondi à la base.

Ecusson petit, allongé.

Pygidium peu déclive, latéralement comprimé, épais.

Les deux premiers segments de l'abdomen grands, séparés par une suture superficielle, les deux suivants réunis moins longs qu'un des précédents.

Cuisses faiblement dentées, le 3^e article des tarses arrondi ¹⁾, le 4^e absent.

L'absence totale du quatrième article des tarses et par conséquent des crochets, la forme non échancrée du 3^e article, ainsi que la construction du rostre (dans le sexe connu), constituent les caractères saillants et remarquables de ce

1) La tranche antérieure présente une échancrure à peine visible.

genre. Ne connaissant qu'un individu unique et par conséquent qu'une seule espèce du genre, je ne saurais décider avec certitude, à quel sexe appartient l'insecte que j'ai sous les yeux. Jugeant d'après l'insertion des antennes, qui est un peu éloignée de la base du rostre comme chez les femelles de ce groupe, ainsi que par analogie avec la forme du rostre chez la femelle du *Haplorhynchus Valdai*, je crois qu'il appartient au même sexe; le rostre du ♂ est très probablement différent et son pygidium présente sans doute quelques différences sexuelles.

Acherus nigricans, n. sp.

D'un noir mat, couvert d'un enduit blanchâtre dans la ponctuation; rostre garni en dessous de broses brunes, avec une protubérance en dessous. Prothorax allongé, portant une ponctuation superficielle. Elytres avec des stries finement ponctuées. — Long. 11 mill., rostr. excl.

Rostre moins long que le prothorax, légèrement arqué, couvert d'une ponctuation obsolète et longitudinalement confluyente, garni à la base d'une ligne imprimée assez profonde; il est en outre longitudinalement imprimé au dessus de la bouche, son dessous comme excavé par une courbe plus forte que la ligne du dessus, la partie concave s'étendant jusqu'à une saillie triangulaire, surmontée par une petite protubérance. Cette protubérance, située près de l'extrémité du rostre, est d'un noir luisant, comme le bout de ce dernier. Des rangées de broses raides, courtes, de couleur brune, s'étendent de la place de l'insertion des antennes jusqu'à la protubérance. Les côtés du rostre portent une rainure, allant de l'insertion antennaire jusqu'au bout. Tête obsolètement ponctuée.

Prothorax presque du double plus long que large, peu rétréci en avant, très faiblement arrondi sur les côtés et à sa base, un peu aplati et inégal sur le disque, garni d'une ponctuation très superficielle, assez grosse et serrée, remplie d'un enduit blanchâtre. Ecusson très petit, déprimé.

Elytres de la longueur du prothorax, pas plus larges que lui, droites sur les côtés, se rétrécissant seulement en arrière, tronquées à l'extrémité, leur surface un peu déprimée, garnies de stries très fines composées de points confluent, plus allongés au milieu du dos, plus ronds sur les côtés; la 10^e strie est complète; les intervalles des stries finement ponctués.

Le pygidium est latéralement comprimé, muni d'une carène obtuse et couvert d'une ponctuation assez grosse et plus serrée à la base. Ces points portent de petits poils blanchâtres ¹⁾).

La ponctuation du métasternum et des deux premiers segments de l'abdomen est plus forte que celle des derniers segments; elle est remplie, comme celle qui couvre les jambes, de petits cils ou poils blanchâtres. Les côtés du mésosternum et du métasternum sont garnis d'une fine pubescence blanchâtre. Le prosternum offre, avant les hanches antérieures, un espace garni de pubescence brune. Le premier segment de l'abdomen offre une impression profonde longitudinale, continuée sur la base du second segment, le dernier segment de l'abdomen est muni d'une impression triangulaire, allongée, s'élargissant en arrière. Les quatre cuisses antérieures sont obsolètement dentées, un peu plus bas que leur milieu; la paire postérieure possède une dent un peu plus grande vers son tiers terminal. Des poils courts, bruns, garnissent la tranche inférieure des quatre cuisses antérieures, de la base jusqu'à la petite dent. Les jambes ont de petites côtes élevées.

Hab. Le Gabon. — Un seul individu.

La Haye, Juin 1891.

1) Le pygidium est d'une forme différente de celui des *Oxyopisthen*, surtout par sa plus grande hauteur, de façon à lui donner, réuni au dernier segment et vu de côté, l'apparence d'une lame à pointe obtuse.

NOTE XXII.

ON ENGRAULIS JAPONICUS SCHLEGEL

BY

Dr. C. L. REUVENS.

June 1891.

In his »Catalogue of Fishes'', Vol. VII, 1868, p. 387, Dr. Günther says, that he agrees with Valenciennes¹⁾ in the opinion, that *Engraulis japonicus* Schlegel (Fauna Japonica, 1850, Pisces, p. 239, tab. CVIII, fig. 3) should be identical with *E. ringens* Jenyns (Voyage of the Beagle, 1842, Fishes, p. 136). On p. 390 of the same volume the author mentions *Atherina japonica* Houttuijn, with *E. comersonianus* Richards. as synonyme.

E. ringens is found at the Pacific coast of America, *E. japonicus* Schleg. in the Japanese seas; yet Günther considers it not a very extraordinary fact, that a same species should occur on these two widely separated coasts. As the author, in 1880, described the shore-fishes of the Challenger-expedition (Chall. exped., 1880, Zoology, Vol. I, pt. VI, p. 72), he named the specimens from the Chinese coasts, mentioned in his Catalogue under the name *E. japonica*, *E. chinensis* and uttered his opinion, that *A. japonica* Houttuijn should be identical with *E. japonicus* Schleg. According to Günther's opinion on p. 387 (Cat. of Fishes, Vol. VII, 1868) *E. japonicus* Schleg. is = *E. ringens*, therefore we should have the following two species:

1) Cuvier et Valenciennes, Histoire naturelle des Poissons, 4^o. T. XXI, p. 20.

a. *E. ringens* Jenyns (Günther, Cat. of Fishes, Vol. VII, 1868, p. 386) s. *E. japonicus* Schleg. s. *A. japonica* Houttuijn.

Diagnostic: The height of the body is one-fifth of the total length (without caudal), the length of the head a little less than one-third; sides and lower parts silvery, back dark-coloured; D. 14—15, A. 19—22. Japan, Pacific coast of America.

b. *E. chinensis* Gthr. (Chall. exped., 1880, Zoology, T. I, pt. VI, p. 72) s. *E. commersonianus* Richards. (Ichth. Chin., 1845, p. 308, not Lacép.).

Diagnostic: The height of the body is one-fifth of the total length (without caudal), the length of the head two-ninths; a well-defined silvery band runs along the side; D. 17, A. 22. China.

Studying *Engraulinae* in the Leyden Museum, I found a bottle from Dr. Bleeker's collection ¹⁾ (Catalogue des Collections formées et laissées par M. P. Bleeker, 1879, p. 46, n^o. 74) with superscription: **Stolephorus japonicus* Schleg. 2. According to the asterisk, the specimens should be in bad condition. Examining the bottle, I saw there were 3 specimens, two of them, very damaged, belonging to one and the same, the third, entirely unimpaired, to quite another species ²⁾. After a careful examination the latter (without a silvery band) proved to be *E. japonicus* Schleg., the first two (with a silvery band) will probably be identical with Günther's *E. chinensis*.

Comparing the descriptions of *E. ringens* Jenyns, *E. japonicus* Schleg., *A. japonica* Houttuijn ³⁾, and *E. chinensis* Gthr. with the specimens in the Leyden Museum, I must conclude that they belong to three species with the following short diagnostics:

1) When in 1879 Dr Bleeker's collections were sold by auction, the Leyden Museum purchased "Collection A", containing among all other species, the types of Bleeker.

2) This specimen is probably put in the bottle, after the latter has come in the Museum; the true locality, where it is found, is unknown.

3) Houttuijn says that his *Atherina japonica* has a well-defined silvery band.

- a. *E. ringens* Jenyns (Günther, Cat. of Fishes, 1868, Vol. VII, p. 386, neither Schlegel, nor Bleeker).

Diagnostic: see above. Pacific coast of America.

- b. *E. chinensis* Gthr. (Chall. exped, 1880, Zoology, T. I, pt. VI, p. 72) s. *E. commersonianus* Richards. (Ichth. Chin., 1845, p. 308, not Lacép.) s. *Atherina japonica* Houttuïjn (Verh. Holl. Maatsch. Wet. Haarlem, XX, 2, 1781, p. 340).

Diagnostic: see above. China.

- c. *E. japonicus* Schleg. (Fauna Japonica, 1850, Pisces, p. 239, tab. CVIII, fig. 3).

Diagnostic: The height of the body is one-seventh of the total length (without caudal), the length of the head a little less than one-fourth: sides and lower parts silvery, back dark-coloured; D. 13—14, A. 18. Japan.

I believe this comparison will sufficiently show the distinctness of the above mentioned three species.

NOTE XXIII.

UEBER EINE NEUE POLYPTERUS-ART
AUS LIBERIA

VON

Dr. F. STEINDACHNER,

Director der zoologischen Abtheilung des k. k. Hofmuseums in Wien.

Bei einer vorläufigen Untersuchung der durch Herrn Büttikofer und seine Gefährten in Liberia gesammelten Fische fand sich eine *Polypterus*-Art, die ich für neu halte und vorläufig hier kurz beschreibe. Zu Ehren des Reisenden, der sie zuerst gefunden und herübergesandt, nenne ich dieselbe

Polypterus büttikoferi.

Char. Habitus wie bei *P. senegalus* Cuv. Kopflänge 6— $6\frac{3}{4}$ mal bei Exemplaren von $16\frac{1}{2}$ —26 Cm. Länge, $5\frac{1}{2}$ — $5\frac{3}{5}$ mal bei jungen Individuen von 10—11 Cm. Länge in der Totallänge, Kopfbreite $1\frac{1}{5}$ — $1\frac{3}{4}$ mal, Schnauzenlänge $4\frac{1}{4}$ — $4\frac{1}{2}$ mal, Augendiameter $6\frac{2}{3}$ —9 mal, Stirnbreite $3\frac{3}{4}$ —nahezu 4 mal, Kopfhöhe $2\frac{1}{3}$ —2 mal in der Kopflänge enthalten.

7—8 Flösselchen in der Dorsale, 23—27 Schuppen vor der Dorsale, welche letztere stets um eine Kopflänge hinter dem hinteren Rande der Pectorale beginnt. 11—12 Schuppen zwischen der Einlenkungsstelle der Ventrals und der Dorsale in einer verticalen Linie, 33—34 unmittelbar vor dem Beginn der Dorsale und der Bauchlinie, 53—55 Schuppen längs der Seitenlinie. P. 35—36. A. 13—15. V. 11—12. Untere Körperhälfte gelb oder bräunlich gelb,

Notes from the Leyden Museum, Vol. XIII.

obere bei jungen Individuen gelblich, mit zahlreichen violetten, schräge nach hinten ziehenden Querbinden; bei alten Individuen ist die Grundfarbe des Rückens hell oder dunkel grauviolett, daher die dunkleren Querbinden meist nur schwach hervortreten. Bei zwei älteren Exemplaren ist die ganze Rückenseite (mit Einschluss des Kopfes) gelb gesprenkelt.

Fundorte: Mahfa River im Sumpfe, Sumpfbach bei Buluma, Sumpf bei Juring am Solymah River. (Reichs Museum in Leiden).

Wien, 30 Juni 1891.

NOTE XXIV.

ON THE CEYLON CETONIIDAE COLLECTED
BY J. Z. KANNEGIETER

BY

J. R. H. NEERVOORT van de POLL

AND

J. Z. KANNEGIETER

The list of Cetoniidae enumerated hereafter is the result of an entomological trip made during the months April and May 1889. The collections, which are in the possession of Mr. Neervoort van de Poll, are chiefly made in the following localities, viz. Belihul-Oya on the southern slopes of the central mountains; Wadduwa near the coast, south of Colombo; Nalanda on the way to Trincomalee, on the northern slopes of the central mountains, whilst several of the more common insects were obtained in the immediate vicinity of Colombo.

Generally Cetoniidae are insects of rare occurrence on flowers and foliage. The common *Glycyphana versicolor* F., however, was taken very abundantly by native boys in the ancient cinnamon gardens near Colombo.

In order to render this paper as useful as possible, all the species hitherto authentically recorded or described from Ceylon, but not met with by Mr. Kannegieter, are incorporated in this list and printed in brackets.

As for our collaboration, it may be noticed to avoid confusion, that new species or varieties are always marked with our respective names.

Coryphocera elegans F.

Belihul-Oya; Wadduwa; Colombo.

Not rare.

var. *cyanoptera* Westw.

Belihul-Oya; Nalanda; Colombo.

Scarce.

var. *fulgidissima* Kanneg.

North from Nalanda.

Four specimens of this splendid variety were taken by a native collector.

They are entirely of a deep brilliant fiery red colour, with the black markings of the typical form. As the blue and the black colour-varieties of *elegans* have got already a name, I thought it best to bestow also a name on the red form, although I am no protector of naming such varieties of complementary colours, which exist — and may be named in advance — of all these emerald-green species.

Clinteria imperialis Payk.

Belihul-Oya; Colombo.

Not rare.

[var. *incerta* Parry].

Clinteria chloronota Blanch.

Belihul-Oya; Wadduwa; Colombo.

I found this species rather abundantly at Belihul-Oya on foliage bordering a brook. Blanchard describes the prothorax with six white punctures without making mention of the position of these spots. The number of spots is very variable; the form with unspotted thorax is not rare, usually there are on the disc in front two .., three . ., four . . . or five . . . white punctures — sometimes the

central one is replaced by a short longitudinal stripe — the form with six spots is very rare and then the sixth one is placed on the basal lobe. I got one specimen with two discal punctures, a central line and a large guttiform spot on the lobe, not unlike the common form of *Cl. confinis* Kirby.

[*Clinteria rufipennis* Jans.].

The Entomologist. Vol. XXII (1886). p. 100.

Clinteria coerulea Hbst.

Not at all rare in the vicinity of Colombo. Among the extensive series collected, there is not a single coeruleous specimen, they are all metallic or bronze green, a few cupreous. A comparison with some specimens, originating from old collections, and with no more peculiar indication of localities than »India or.» offers some differences in general aspect and sculpture which could led to regard the Ceylon form as a distinct race when having sufficient material of authentic specimens from the continent.

Specimens without spots on the thorax are scarce, generally there is a rather large white puncture near the middle of the sides and very often still a smaller one may be observed more in front.

The elytra have no less than eight spots on each, moreover the tip of the scutellum is bordered with white.

var. *megaspilota* Kanneg.

North from Nalanda, my native collector captured three male specimens of a quite distinct looking large variety of *coerulea* Hbst.; it is much more robust in all its dimensions, the white spots have exactly the same position but are very large, the thorax is ornated with four spots, the mesosternal process is rather less produced.

Clinteria pumila Swtz.

Nalanda.

In the Munich Catalogue *Clinteria pumila* Swartz is placed as a variety of *Cl. coerulea* Hbst.; now there is among the Ceylon Cetoniidae a *Clinteria*-species allied to but quite distinct from *coerulea* Hbst., which I feel strongly inclined to regard as the true *pumila*, although neither Swartz's description nor Burmeister's redescription are sufficiently complete to prevent every doubt, I therefore consider it useful to give a full description of this Ceylon insect.

♀. Shining, dark cupreous, under surface, pygidium and tarsi almost black with strong cupreous reflexions.

Head coarsely punctured, somewhat convex in the middle, with four small impressions, two near the insertion of the antennae and two along the sides of the clypeus; clypeus rather broad, slightly elevated laterally, front margin moderately emarginate, with the lobes broadly rounded and narrowly reflexed.

Prothorax feebly angular in the middle, very narrowly margined along the sides, with an irregular impression filled with white pubescence about the middle; deeply but rather distantly punctured all over. The disc in front with two hardly perceptible white punctures.

Elytra broad, but very little narrowed posteriorly, broadly rounded at the tip, obtuse at the suture, with seven rows of large angular punctures on each, and a few small scattered punctures along the sides, sutural costae and the 3rd, 5th, and 7th interstice — the latter but very short — strongly raised; ornated with numerous white spots, eleven on each wingcase, placed exactly as in *Cl. chloronota* Blanch.

Pygidium finely rugosely striated, clothed with a fulvous pile. Underneath with the sides of the breast strigose, sides of the abdomen roughly punctured, mesosternal process obtusely produced, anterior tibiae with two strong

lateral teeth, legs and breast covered with a sparse fulvous pubescence.

The colour does not agree with the description of Swartz, but this, as well as slight modifications of the white markings, I consider of subordinate value, and the principal characters, viz. the strongly punctured prothorax, and the pygidium without spots, are present in this Ceylon Cetoniid. (van de Poll).

[*Agestrata nigrita* F.].

Thaumastopeus ceylonicus v. d. Poll, n. sp.

Nitid black. Head longitudinally depressed at the sides, slightly convex in the middle. The emargination in front deep and triangular, the lobes produced and somewhat acute, smooth on the vertex, coarsely punctured laterally.

Thorax moderately convex, anterior margin slightly produced over the head, sides somewhat angular in the middle and narrowly margined, posterior lobe broad, triangular, truncated at the tip; disc smooth, at the sides (chiefly in front) with a few deep irregular punctures and scratches.

Scutellum acute, impressed at the tip.

Elytra moderately convex, strongly depressed at the suture near the scutellum, sutural costae sharply elevated posteriorly, terminating in an acute point, the disc with several regular rows of deeply impressed large horse-shoe shaped punctures, the two innermost rows on each obliterated above near the suture, the sides and the apex closely striated.

Pygidium transversely convex, impressed in the middle, very finely and densely strigose. Underneath covered with very deep and irregular punctures, prosternum and sides of the abdomen strigose, all the ventral segments with irregular transverse rows of circular and semi-circular punctures; mesosternal process long, subcylindrical, almost straight, obtusely pointed and slightly recurved at the apex; legs punctured and strigose, with short black hairs, anterior tibiae with two strong acute lateral teeth.

The male is rather narrower, with the elytral sculpture much obliterated on the disc: the pygidium still more densely strigose along the middle, the mesosternal process somewhat bent downwards, the sculpture of the whole under surface shallower.

Length 25—28 mm., breadth at the shoulders $11\frac{1}{2}$ —13 mm.

Allied to *pulla* Billb. from the Himalayas, but differing greatly in its broader form — chiefly in the female sex — and in its very strong and regular punctuation of the elytra: moreover the forceps is very unlike that of any other *Thaumastopeus*-species I have examined.

Three females and one male taken at Belihul-Oya and near Colombo.

***Macronota quadrivittata* Schaum.**

I captured a single ♂ specimen, together with a female of the next following species, on flowers in the Botanical Garden at Peradenia.

***Macronota sculpticollis* Thoms.**

This species may be considered with great probability to be only the female sex of *M. quadrivittata*. Nine specimens examined proved to be all females, whilst sixteen specimens of *M. quadrivittata* invariably belonged to the male sex.

[*Macronota Halyi* Sharp].

The Ent. Mo. Mag. Vol. XXII (1886), p. 197.

***Glycyphana Horsfieldi* Hope.**

Belihul-Oya.

A few specimens.

***Glycyphana versicolor* F.**

Colombo.

Very abundant and exceedingly variable in colour and

Notes from the Leyden Museum, Vol. XIII.

markings. I may mention a very rare variety, a single specimen out of three or four hundreds, with a small white spot on each side at the base of the thorax.

***Protuetia regalis* Burm.**

Two specimens of this fine species were brought to me when at Colombo; they are entirely black instead of purple-coppery, and also smaller than the numerous specimens from the continent I have had for comparison.

[***Protuetia Whitehousei* Schaum**].

***Protuetia alboguttata* Vigors.**

Nalanda; Colombo.

Three specimens only; they are all of a dark bluish-black colour. The individual from Colombo has a rather singular aspect, the elytral spots, with exception of the marginal one below the middle, being of much reduced size.

***Protuetia maculata* F.**

Colombo.

Not rare.

***Protuetia peregrina* Hbst.**

Colombo.

Several specimens.

***Anthracophora crucifera* Oliv.**

Belihul-Oya.

A few specimens.

[***Coenochilus taprobanicus* Westw.**].

Thesaurus Ent. Oxon. 1874, p. 46, pl. XIII, fig. 8.

[***Valgus addendus* Walker**].

This is probably only a synonym of *Valgus podicalis* Blanch.

Amsterdam, July 1891.

NOTE XXV.

SYNONYMICAL REMARKS ON CETONIIDAE

BY

J. R. H. NEERVOORT van de POLL.

1. *Lomaptera marginata* Kraatz (Deutsche Ent. Zeitschrift, 1890, p. 31) = *Lomaptera Duboulayi* Thoms. (Bull. Soc. Ent. de France. (5) VIII, 1878, p. cxxxviii; Aid to the Identification of Insects, plate 144, fig. 3).
2. *Cirrhopila flavo-maculata* Kraatz (l. c. p. 279, taf. II, fig. 14) = *Gnorimidia Toyae* Lansb. (Notes from the Leyden Mus. IX (1887), pp. 168 and 169).

NB. This insect is authentically recorded from the »Kodeicanel Mountains" near Madras, the locality »Java" given by Kraatz for it, will be just as erroneous as it is for *Melinospila (Macronota) flavo-maculata* G. & P., a species from Pondicherry, which Mr. Nonfried should have received, together with *G. Toyae*, from Java.

Amsterdam, July 1891.

NOTE XXVI.

A NEW SPECIES OF THE LONGICORN GENUS
NEOPHARSALIA v. d. POLL

BY

J. Z. KANNEGIETER.

Neopharsalia vagans, n. sp.

Head brown, covered with a thin greyish pubescence, the under-lobes of the eyes more thickly bordered with ochraceous pile, two oblique stripes of the same colour on the vertex; mandibles black; a fine central line along the middle, antennary tubers bluntly toothed at the innerside. Antennae very long and slender, the last 5 or 7 joints generally more or less incurvate, the scape of the colour of the head, the other joints becoming gradually paler, being only infusate at both the extremities.

Prothorax rather longer than wide, the sides produced into a pointed tooth in the middle; the front margin straight, the basal margin tri-sinuate, with a shallow straight transverse impression near the basal margin, and another strongly angular one in front; the disc with a short impressed central line (which, however, is quite obsolete in one specimen), and some large distant punctures; brown, clothed with a greyish tomentum, ornated with three irregular longitudinal ochraceous stripes, one in the middle, not quite extending to the base, and a somewhat broader one near the sides; a few small ochraceous spots may be observed below the central tooth.

Scutellum small, semi-circular, with a small ochraceous spot at the tip.

Notes from the Leyden Museum, Vol. XIII.

Elytra straight at the base, rounded at the shoulders, the sides slightly narrowing towards the apex, where they are truncate in an oblique direction towards the suture; covered with a deep punctuation, strongest and somewhat granular at the base, and gradually diminishing near the tip. Derm brown, covered with a sparse greyish pile, ornated with a few scattered ochraceous spots, chiefly near the shoulders. whilst the apical third is almost entirely occupied by more or less confluent spots of the same colour.

Under surface and legs pale brown, clothed with a fine greyish pubescence, on the abdominal segments some indistinct ochraceous patches; mesosternum provided with a small obtuse knob.

The female differs only by the shorter antennae and the less attenuated elytra.

Length 14—15 mm., breadth at the shoulders 5—6 mm.— In Mus. van de Poll.

Allied to *N. Costeri* v. d. Poll, but much more slender, the elytra longer and less attenuated, the antennary tubers more strongly pointed at the innerside, the mesosternum slightly produced.

I captured a ♀ specimen at Pandan Aroem, an estate on the southern slopes of the Goenoeng Endoet in the Preanger districts (W. Java). Moreover I have had at my disposal two ♂ examples from Soekaranda: Langkat-Deli (E. Sumatra), and another male from South Borneo. Finally Mr. Neervoort van de Poll noticed the presence of specimens from Celebes in the Dresden Museum.

Amsterdam, July 1891.

NOTE XXVII.

QUATRE ESPÈCES NOUVELLES DE GYRINIDES
DU GENRE ORECTOGYRUS

DECRIRES PAR

M. RÉGIMBART.*Orectogyrus sexualis*, n. sp.

Long. 7—8½ mill. — *Oralis*, sat elongatus, fortiter convexus; supra nitidissimus, cirrili-aeneus, leviter cupreus, rufo-tomentosus; infra pallide testaceus, pedibus anterioribus nigro-variegatis. Labro semi-elliptico, in medio minime carinato nec laevi. In elytris spatio suturali laevi ♂ lato, postice longe et profunde bifido et medium attingente, subtilissime reticulato. ♀ latissime lanceolato et paululum ante apicem terminato, subtilissime quoque reticulato et praeter ad apicem tenuiter subundulatim striolato; costa laevi approximata, sat lata, postice obtusa, ♀ paulo longiore, ante truncaturam desinente; truncatura in medio fere recta, extus fortiter convexa et sinuata, angulo suturali recto, externo fortiter acuto, spinoso. Tibiis anterioribus, praecipue apud marem, sat robustis, margine externo valde convexo, angulo externo fortiter rotundato, omnino deleto.

Cette espèce bien caractérisée présente une très grande analogie avec l'*O. Leroyi* Rég., dont elle se distingue par sa forme moins trapue et plus allongée et sa couleur plus verte, en même temps que par la structure des espaces lisses. La couleur est en dessus d'un beau vert bronzé avec des reflets cuivreux sur le pronotum et la région suturale, en dessous d'un testacé pâle, avec les pattes antérieures

variées de noir. L'espace sutural lisse du mâle est assez large et divisé postérieurement depuis le milieu de sa longueur en deux lobes étroits dont la pointe ne dépasse pas le milieu de l'élytre; entre les lobes la ponctuation est plus rare et plus grosse; chez la femelle cet espace sutural est largement lancéolé, se termine un peu avant le sommet et en outre de la fine réticulation il est pourvu, sauf vers son sommet, de stries rugiformes serrées, peu profondes, un peu ondulées et légèrement obliques; la côte lisse en est très rapprochée, assez large, obtuse en arrière où elle se termine à peu près au même niveau que l'espace sutural chez la femelle; elle est un peu moins développée chez le mâle.

Le tibia antérieur a une structure remarquable: son bord externe est très convexe en dehors, avec l'angle externe très largement arrondi et entièrement effacé.

Hab. Libéria occidental; pris par Mr. A. T. Demery (Musée de Leyde).

Orectogyrus angularis, n. sp.

Long. $6\frac{1}{2}$ a $7\frac{1}{2}$ mill. — *Oblongo-ovalis, elongatus, valde convexus; supra metallicus, viridi-aeneus, purpurascens et iridescens, subtilissime reticulatus, griseo-tomentosus; infra omnino pallide testaceus, tibiis anticis ad basin et intus nigricantibus. Labro semi-elliptico, porrecto, fortiter punctato, in medio subcarinato et anguste laevi; pronoti regione tomentosa lata, in margine interno leviter undulata; in elytris sutura paululum elevata, ♂ antice tantummodo, ♀ fere usque ad apicem laevi, utrinque costa fere recta laevi, ♂ angustula et vix post medium prolongata, ♀ latiuscula et paulo ante apicem terminata; truncatura obliqua, fortiter convexa, extus sinuata, angulo apicali externo acuto, fortiter prominulo, suturali subacuto, praecipue apud feminam leviter spinose producto. Tibiis anterioribus sat robustis, extus ante apicem sinuatis, angulo apicali externo, praecipue apud marem, acuto et fortiter extus producto, tarso elongato flavo.*

Espèce très voisine de l'*O. cuprifer* Rég. et surtout de l'*O. Büttikoferi* Rég. Elle diffère du premier par sa forme

un peu plus allongée, par la couleur plus foncée et d'un pourpre plus bleu, par la pubescence moins argentée, par le labre plus allongé et développé, par la côte et la portion lisse de la suture plus larges et plus prolongées vers le sommet, par l'angle interne de la troncature plus aigu et subépineux, par l'angle externe du tibia antérieur qui est beaucoup plus aigu et saillant en dehors.

Elle se distingue du second, dont elle a la forme allongée et la couleur, par les deux derniers caractères, c'est à dire ceux des angles interne de la troncature et externe des tibias antérieurs et en même temps par la couleur noirâtre de la base et du bord interne des tibias antérieurs dans les deux sexes.

Hab. Libéria occidental; pris par Mr. A. T. Demery (Musée de Leyde).

Je serais très disposé à admettre que l'espèce actuelle et l'*O. Büttikoferi* n'en font qu'une seule; mais je ne pense pas qu'on puisse ne les considérer que comme des variétés de l'*O. cuprifer*; car tous les *O. cuprifer* très nombreux que j'avais d'Afrique occidentale, orientale ou méridionale sont bien semblables entre eux comme forme, couleur et sculpture; la variété *elongatus* Rég. seule se distingue par sa forme plus allongée et étroite, sa taille un peu plus petite et un peu plus d'ampleur dans les parties lisses.

Orectogyrus Demeryi, n. sp.

Long. $4\frac{1}{2}$ —5 mill. — *Ovalis, elongatus, convexus; supra nitidus, subtiliter reticulatus; viridi-aeneus, griseo-tomentosus, flavolimbatus; infra pallide testaceus. Labro semicirculari, fortiter punctato, antice laevi; prothoracis limbo luteo in medio intus triangulariter dilatato, margine tomentoso angustissimo, antice post oculos anguste dilatato; in elytris spatio suturali laevi communi lato, lanceolato, fere usque ad apicem prolongato, sat fortiter elevato, costa sublaterali latissime elevata, parallela, fere in truncatura desinente; truncatura fere recta, vix concava, angulis leviter obtusis. Sculptura*

sexibus inter se similibus; ♂ tibiis anterioribus latis, ad basin attenuatis, angulo apicali externo recto, subprominulo; tarso angusto, elongato, omnino parallelo.

Charmannte espèce, jusqu'ici la plus petite du genre, d'une belle couleur vert bronzé sans reflets cuivreux ni pourprés en dessus, d'un testacé très pâle en dessous, ainsi que sur les pattes. La bande jaune affecte sur le pronotum une forme triangulaire par sa dilatation interne, la bordure tomenteuse y est très étroite et se dilate en avant derrière les yeux. Sur les élytres l'espace lisse sutural commun est élevé, largement lancéolé, acuminé et se termine presque à l'angle sutural; la côte lisse, également élevée et située très en dehors, est très large, parallèle et se termine par une extrémité obtusément arrondie qui n'est séparée de la troncature que par une languette tomenteuse extrêmement étroite; la troncature est presque droite et à peine convexe, avec les deux angles un peu obtus, mais non effacés. Le tibia du mâle est assez large, subparallèle dans sa seconde moitié, très rétréci à la base, avec l'angle externe droit et presque saillant, le tarse est long, étroit et absolument parallèle. A part ces caractères sexuels des pattes, les deux sexes sont semblables.

Hab. Libéria occidentale; pris par Mr. A. T. Demery (Musée de Leyde).

Orectogyrus Alluaudi Rég.

(Ann. Soc. Ent. France. Octobre 1889, p. 250).

Les exemplaires mâles recueillis par Mr. Demery à Cape Mount sont identique à ceux qu'avait pris Mr. Alluaud à Assinie; les femelles paraissent un peu plus allongées et l'espace lisse sutural commun est un peu plus atténué et à peine plus prolongé en arrière.

Orectogyrus discors, n. sp.

Long. $5\frac{1}{2}$ — $6\frac{1}{4}$ mill. — *Ovalis, valde elongatus, fortiter convexus; supra nitidissimus, subtilissime reticulatus, nigro-aeneus, plus minus virescens et cupreus, flavo limbatus,*

fulvo tomentosus; infra pallide testaceus, pedibus concoloribus. Labro fere semicirculari, leviter transverso; prothoracis limbo flavo intus vix angulatim dilatato, margine tomentoso parum lato, antice non dilatato, in elytris spatio scutello-suturali ♂ elliptico, postice vix brevissime bilobato, post medium desinente, ♀ longius elliptico, deinde multum ante apicem fortiter strangulato et postice rectangulariter dilatato et totam suturam praeter ad angulum externum occupante; truncatura ♂ leviter obliqua, sat convexa, extus paululum sinuata, angulo externo recto subprominulo, interno recto, ♀ valde obliqua, bisinuata, angulo externo leviter acuto, prominulo, suturali recto. ♂ tibiis anterioribus parum latis, angulo apicali externo valde rotundato et deleto; tarso latiusculo parallelo.

Espèce très dissemblable dans les deux sexes, à bordure jaune du pronotum très peu anguleusement dilatée au milieu. Chez le mâle l'espace lisse scutello-sutural est elliptique et se prolonge jusqu'aux deux tiers de l'élytre par une extrémité qui est à peine et très brièvement bilobée sur la suture; la troncature est faiblement oblique, assez convexe, un peu sinuée en arrière avec l'angle externe droit et un peu saillant, l'interne droit et subarrondi. Chez la femelle l'espace lisse commun a sa première partie elliptique jusqu'aux trois quarts postérieurs où il est fortement rétréci, puis il se dilate de nouveau brusquement à angle droit et occupe toute la troncature, moins le voisinage de l'angle externe, affectant ainsi la forme d'un verre à boire à pied; dans ce sexe la troncature est très fortement oblique, bisinuée, avec l'angle externe sensiblement aigu et saillant, l'interne droit.

Hab. Libéria occidental; pris par Mr. A. T. Demery (Musée de Leyde).

Evreux, Juillet 1891.

NOTE XXVIII.

SYNONYMICAL REMARK ABOUT
CETONIA BIFIDA OLIV.

BY

J. Z. KANNEGIETER.

In a paper on the Australian Schizorrhinidae Dr. Kraatz established a. o. a new genus *Dysephicta* (Deuts. Ent. Zeitschr. XXIV, p. 208) for the reception of *Cetonia bifida* Oliv. (the *Schizorrhina bifida* of G. & P., Schaum and the Munich Catalogue), which was said to be from India or. The type specimen of G. & P. having now passed into the possession of Mr. Oberthür, it has, however, turned out to be, instead of an Indian insect, the well-known *Anochilia republicana* Coq. from Madagascar, for which Dr. Kraatz has proposed the new generic name *Coquerelia* (l. c. p. 314). About this genus Mr. O. E. Janson remarks at the end of his description of *Anochilia incilis* (Cist. Ent. III, p. 147), »the characters given by Kraatz to distinguish his genus *Coquerelia* from *Anochilia* are evidently not of generic value, as they almost entirely fail in this species.”

The synonymy of *C. bifida* consequently may be established as follows:

Anochilia bifida Oliv.

Cetonia bifida Oliv.

Schizorrhina bifida G. & P.

Schizorrhina bifida Schaum.

Dysephicta bifida Kraatz.

Anochilia republicana Coq.

Coquerelia republicana Kraatz.

It is worthy of note that Thomson in his list of types of Gory & Percheron (Typi Cetonidarum, p. 36) correctly referred this insect to *Anochilia*.

Amsterdam, July 1891.

NOTE XXIX.

TWO NEW SPECIES OF THE GENUS HELOTA
FROM BORNEO

DESCRIBED BY

C. RITSEMA Cz.

Besides *Helota Vigorsii* Mac Leay no other *Helota*-species were as yet known from Borneo ¹⁾. Now, in a recent consignment of beetles, received by Mr. Neervoort van de Poll and brought together in the Doeson-countries (S. E. Borneo, 1° South, 115° East) by Mr. Wahnes, two new species, each represented by a single female specimen, were present, and Mr. van de Poll kindly allowed me to describe them. One of them, which I have much pleasure in naming after its possessor, is allied to *Helota Faeae* Rits. from Burma ²⁾, the other to the Japanese *Helota cereopunctata* Lewis ³⁾.

Helota Vandepolli, n. sp. ♀.

Length 11 mm. — Shining; narrow and elongate, narrowed in front and behind; the colour of the upper surface is greenish bronze, here and there with faint tinges of purple; the antennae reddish testaceous at the base,

1) The specimens from Borneo with which I am acquainted are in the collections of Mr. René Oberthür and of Mr. Neervoort van de Poll. — A male specimen of a variety of the same species, from the neighbouring island of Labuan, is in the collection of the Genoa Museum (see: Ann. Mus. Civ. di Genova, Vol. XXX, p. 885). In this specimen the punctuation of the head is somewhat coarser than in the specimens from the other localities.

2) Ann. Mus. Civ. di Genova, Vol. XXX (1891), p. 886.

3) Ent. Mo. Mag. Vol. XVII (1881), p. 255.

passing into dark pitchy towards the end; the four convex yellow elytral spots small; surrounded with bluish black, and situated between the 3rd and 6th striae. The colour of the underside is reddish testaceous, with the exception of the head (the throat alone has a testaceous colour), the lateral portions and the anterior edge of the prosternum, and the elytral epipleurae, these parts being of a bronze green colour; the pro- and mesosternum show a metallic green hue; the legs are reddish testaceous, with the apex of the femora, the base and apex of the tibiae, and the tarsi dark pitchy or black, whereas an infusate stripe is present along the upperside of the anterior femora.

Head strongly produced in front of the eyes, with a raised streak along the middle, deeply punctured, the punctures in the raised middle portion large and remote, near the eyes they are smaller and placed close together, in front they are very small; underneath the metallic middle portion of the head is finely and very remotely punctured.

Prothorax subtransverse, widest at the base, narrowing in regularly curved lines to the front; the sides irregularly and rather indistinctly crenulate, the front angles slightly produced; the base deeply bisinuate, the lateral angles acute, the median lobe subtruncate and with an indistinct punctiform impression; the disk strongly and somewhat irregularly closely punctured, with the usual nearly impunctate raised patches, viz. a mesial forked one extending from the base on to the anterior margin, an elongate slightly oblique basal one on each side of the former, and a very small one in front of the oblique basal patches. The scutellum is small and transverse. The sterna show laterally a few distinct punctures; the metallic coloured sides of the prosternum are faintly and irregularly wrinkled anteriorly.

Elytra subparallel, the sides faintly convex, rapidly narrowing in straight lines at some distance before the

apices ¹⁾ which are subacute, and dehiscent at the suture; each elytron with ten regular, punctured striae of which the 4th and 5th are interrupted by the yellow convex spots and are not continued behind the posterior one; the punctures in the striae become larger and larger towards the sides, and at the same time the interstices become narrower and alternately more costiform; the interstice between the 2nd and 3rd striae becomes costiform towards the end and extends on to the extreme tip of the elytra; the punctuation on the shoulders is obsolete; the epipleurae are smooth and impunctate.

Abdomen smooth, with a few minute hair-bearing punctures along the middle; the last ventral segment regularly rounded posteriorly.

The legs are smooth and impunctate, the anterior tibiae slightly curved.

Helota Vandepolli is at once distinguished from *Helota Feae* by the colour of the sides of the prothorax, these being bronze green in stead of reddish testaceous.

Helota brevis, n. sp. ♀.

Length 8 mm., breadth at the posterior angles of the prothorax 3 mm. — Broader than any of the other species of the extensive division characterized by the evenly punctured pronotum without raised patches.

Rather dull; above dark bronze green, with coppery tinges on the front portion of the head and along the inner orbits; the middle of the anterior margin of the pronotum, its whole basal margin, the scutellum, and the basal margin and sutural interstice of the elytra of a bright golden or coppery colour; the antennae dark reddish testaceous, the club somewhat lighter, the basal joints with a metallic green hue; each elytron provided between the

1) On this spot of the outer margin the described specimen shows on the left side one, on the right side two minute angular notches.

3rd and 6th striae with two pale fulvous round spots. — The colour of the underside is reddish testaceous, with the exception of the head, the lateral portions and the anterior margin of the prosternum, and the elytral epipleurae, these parts being of a bronze green colour; the coxae and femora are reddish testaceous, the tip of the latter and the entire tibiae bright metallic green, the tarsi dark pitchy brown.

Head very broad, not strongly produced in front of the eyes, strongly but rather remotely punctured, the punctures somewhat smaller but closer set along the inner orbits, very fine on the narrowed front portion.

Prothorax distinctly broader at the base than long; the sides, which are minutely crenulate, converge in faintly curved lines towards the front margin, the latter slightly emarginate, the anterior angles consequently only very slightly protruding; the base deeply bisinuate, the lateral angles acute, the median lobe rounded; the upper surface regularly convex, strongly and closely punctured, especially at the sides, leaving free, however, a line along middle, which is broadest at the base. The scutellum is strongly transverse.

Elytra subparallel, narrowing at the posterior third in regularly curved lines towards the apices, which are narrowly rounded, and slightly dehiscent at the suture; an extremely minute tooth is present at the sutural margin at some distance from the extreme tip, and also two or three extremely minute denticulations, better seen from beneath, on the lateral margin at about two-thirds of the length of the elytra. Each elytron has ten striae of deeply impressed punctures, of which the 4th and 5th are interrupted by the fulvous spots and are not continued behind the posterior one; the interstices, which become somewhat costate on the apical portion, are very finely punctured and show moreover a row of punctures which become larger towards the sides.

The under surface of the head is covered with very large

punctures; the prosternum strongly punctured, somewhat obsoletely however on the testaceous middle portion; the sides of the metasternum with a few large punctures, the middle portion with an impressed longitudinal line; the elytral epipleurae with irregular, not sharply defined punctures.

The ventral segments extremely finely punctured, the last segment subtruncate at the apex.

The legs smooth, the tibiae strongly punctured, those of the anterior pair slightly curved.

Leyden Museum, July 1891.

NOTE XXX.

SOME OBSERVATIONS RELATING CYNOPTERUS
BRACHYOTIS MÜLLER AND KERIVOULA
PELLUCIDA WATERHOUSE

BY

Dr. F. A. JENTINK.

July 1891.

Cynopterus brachyotis S. Müller.

In van der Hoeven's Tijdschrift voor Natuurlijke Geschiedenis en Physiologie, 1838-39, a small bat has been described by Dr. S. Müller under the name *Pachysoma brachyotis*. That author collected a large number of specimens, all in the same locality, a deep lime-stone cave, on the bank of the river Dewej, in the interior of Borneo: these type specimens are in our Museum.

Dobson (Catalogue, 1876) remarks under the head *Cynopterus brachyotus* that an examination of the types of *brachyotus* (lege *brachyotis*) in the Leyden Museum has shown him that the Andaman-island variety (described by him in 1873 as *Cynopterus marginatus*, var. *andamanensis*) is identical with Müller's species. In the well-known Catalogue published by Dobson in 1878, no word however, concerning this species; *Cynopterus brachyotis* Müller seems to be entirely overlooked by that author. I am not aware that the species has been recorded or mentioned after the year 1876, neither in the P. Z. S. nor in any other periodical, so that I fear that it is on the way to disappear among

its fellows; the more as Dobson has bestowed the specific title of *brachyotis* upon a new species of the with *Cynopterus* so closely allied family *Cynonycteris* (see P. Z. S. 1877 and Catalogue, 1878) and so one perhaps might confound them and believe that Müller's *brachyotis* would be the same as Dobson's *brachyotis*, meanwhile they represent two well defined and really very different species, belonging to two distinct families.

Müller observed that *brachyotis* is about one third smaller than *titthecheilum* (= *marginatus*), for the rest colored like that species, the wings however being darker, of a sooty color, meanwhile the ears present too a sooty color: Temminck (Mon. mamm. II) compared the type-specimens with *Pachysoma brevicaudatum* (= *C. marginatus*) and remarked that Müller's *brachyotis* »diffère néanmoins par ses petites oreilles courtes, arrondies, dépourvues de toute bordure marginale et de plis verticaux internes; elles sont aussi moins larges et toujours d'une couleur noire." Although Müller's specimens are at present nearly white, with exception of the reddish colored collar, so that the dark tinge of ears and wings has disappeared (they have been preserved in a stuffed state and have been bleached by the influence of light), the white margin of the ears, however, is very clear to see, so that I cannot understand how Temminck overlooked this characteristic and could write that the ears are »dépourvues de toute bordure marginale."

But taking leave of badly preserved and bleached stuffed specimens I now proceed to give a better exposition of the two *Cynopterus*-species with white-bordered ears, *C. marginatus* and *C. brachyotis*, based upon fresh material, preserved in alcohol, recently received from Java and Sumatra.

C. brachyotis at a glance is distinguished from *C. marginatus* by its white fingers, strikingly contrasting with the dark wing-membranes, smaller ears, more elongate muzzle and smaller head.

The tinge of the hairs on the back of *C. marginatus* is

somewhat black, meanwhile in *C. brachyotis* a more brownish tinge prevails. In the males of *C. brachyotis* (sometimes too present in the females) the collar is much more developed and generally redder colored than in male-specimens of *C. marginatus*.

The dimensions, in Millimeters, taken from about twenty specimens of *C. brachyotis* and several specimens of *C. marginatus* vary as follows:

	<i>C. brachyotis.</i>	<i>C. marginatus.</i>
Length ear (anteriorly) . . .	15—17 . . .	18—20,5
» ear to eye	9—11 . . .	13—14
» eye to tip of nostril. . . .	10,5—11 . . .	12—13
» forearm	60—70 . . .	75—80
» second finger.	101—117 . .	126—133
» fourth finger	78—80 . . .	97—102
» tibia, foot and claws. . .	35—42 . . .	49—52

I failed to detect difference in length in the sexes; all the measured specimens are fullgrown, f.i. pregnant females. They have been collected by Mr. Kanuegieter in Java (Buitenzorg), and in Sumatra (Deli-Bedagei, Krapoh and Palembang, Lahat) and have been presented to our Museum by Mr. J. R. H. Neervoort van de Poll.

Kerivoula pellucida Waterhouse.

Waterhouse described this species after a specimen collected by Mr. Cuming in the Philippine Islands (P. Z. S. 1845) and presented by the latter to the Zoological Society's collection. According to Dr. Dobson (Catalogue, Indian Museum, 1876) the type is an adult ♂ preserved in alcohol; in 1878 (Catalogue, Chiroptera, British Museum) Dobson has exhibited a second specimen, a young ♀, too from the Philippines: his descriptions and measurements given in 1878 exactly and verbally agree with those given in 1876. Mr. Tomes (P. Z. S. 1858) said that the examination and comparison of Waterhouse's type-specimen of

V. pellucidus and the type of Horsfield's *K. hardwickii* has proved beyond question their identity and he gives the dimensions taken from the type-specimen of *V. pellucidus*, adding that the dimensions may be considerably altered by the state of preservation of that specimen. And indeed if we compare the measurements given by Waterhouse, Tomes and Dobson, it seems somewhat difficult to believe that they have all been taken from one and the same specimen.

	Waterhouse, Tomes, Dobson.		
	1845	1858	1876, 1878.
Longitudo ab apice rostri ad			
caudae basin.	1,8	1,9 . . .	1,65
Longitudo caudae	1,9 ¹ / ₂ . . .	1,11 . .	2.
» antibrachii . . .	1,3	1,3 . . .	1,25
» auris	0,7	0,7 . . .	0,7
Alarum amplitudo	9,6	10,6	
Length of head		0,8 . . .	0,6
» » tragus		0,4 . . .	0,35
» » longest finger		2,10 ¹ / ₂ .	2,9
» » fourth finger.		2,1 . . .	2.
» » foot and claws.		0,4 . . .	0,3

Dobson (Catalogue, 1876) again separated *pellucida* from *hardwickii*; he said that Tomes confounded the two species and that the size and shape of the ears at once distinguish the species.

I am not aware that after the year 1878 *Kerivoula pellucida* has been mentioned in scientific papers or other publications, and I think that, except the type and a young specimen in the British Museum, both from the Philippines, no specimen has reached Europe.

In the above mentioned collection there are four specimens, from Krapoh, Deli-Bedagei, East Sumatra, a male and three females, which I, without any hesitation, enregister as *Kerivoula pellucida* Waterhouse. It is at once distinguished from *K. hardwickii* by its color, size and shape of the ears and different length of body and wings.

Meanwhile in *hardwickii* a rather dark tinge prevails and the difference between upper- and under parts of the body hardly is perceptible, in *pellucida* the upper parts are of a brownish red, meanwhile the underparts are much lighter colored so that those parts make the impression of being whitish.

In *hardwickii* the muzzle is very hairy, in *pellucida* however that part is provided with a few scattered hairs, so that at first glance one would believe the muzzle to be bald.

With regard to the ears I refer to Dobson's description.

Measurements in Mm. of the four Sumatra-specimens preserved in alcohol in our Museum:

	<i>K. pellucida.</i>				<i>K. hardwickii.</i>
	♂	♀	♀	♀	♂
tail	40 . .	41 . .	42 . .	45 . .	55
ear	14,5	15,5	15,5	16 . .	12,5
tragus	8,5 .	8,5 .	9 . .	8,5 . .	7
forearm	30 . .	30 . .	31 . .	32 . .	33
second finger	67 . .	66 . .	67,5 .	70 . .	72
fourth finger	49 . .	50 . .	49 . .	51 . .	52
foot and claws	6,5 . .	6,5 . .	6,5 . .	7 . . .	7

As may be seen from the above measurements *K. pellucida* always is smaller in all directions except in length of ear and tragus, which parts constantly are strikingly of a much larger size, relatively and absolutely.

NOTE XXXI.

SOME ADDITIONS TO THE MAMMALIAN-FAUNA OF
BILLITON

BY

Dr. F. A. JENTINK.

July 1891.

In the Notes from the Leyden Museum, 1890, p. 149, I said that *Sciurus prevostii* belongs to the fauna of Billiton; this statement was based upon two specimens procured by the late Teysmann in 1877 in that island and presented to our Museum (cf. Cat. syst. des Mammifères, 1888, p. 26, *m* and *n*). Dr. Vorderman kindly informs me that *Sciurus prevostii* perhaps formerly has been introduced there and afterwards has grown wild. Specimens have been brought over from Mendanao, a small island close to the west coast of Billiton, and are at present living in Billiton in the neighborhood of Tandjong Pandan, N. W. Billiton, in the gardens, having escaped from their cages. He nowhere in the interior observed a single specimen.

According to Dr. Vorderman in Billiton is living the *Cervus*-species known from Banka, viz. *Cervulus muntjac*, moreover the *Kidung* and *Napoe* are very common. In a collection of animals from different localities presented by Dr. Vorderman to our Museum there is a *Tragulus*-specimen, according the label called *Pelandock* by the indigenous — I remember that Dr. Hagen¹⁾ remarked that in Deli the

1) Die Pflanzen- und Thierwelt von Deli, auf der Ostküste Sumatra's. Naturwissenschaftliche Skizzen und Beiträge, in Kon. Ned. Aardrijkskundig Tijdschrift, 1890, p. 102.

Malays call *Tragulus napu*, *Blandoh*, perhaps a contraction of *Pelandock*.

This Billiton-specimen is quite different in color from all other hitherto described species or varieties and, compared with our very large number of *Tragulus*-specimens, there only is a single specimen with which it agrees, namely an individual collected by Teysmann in Banka: the Banka-specimen is an adult, the Billiton-specimen a nearly adult one (the hindmost molars are not yet developed). As will be clear by reading the following description it most likely can be brought under one of the known species and so I think it correct to describe it not as a new species, but rather as a melanistic variety of

Tragulus napu.

It attains the size of *Tragulus napu* and agrees with this species too in color of the upper parts, that is to say it has such a dark color as the darkest colored specimens of *napu* present. From eye to nose runs a black stripe like in *napu* and *stanleyanus*. Nape of the neck (in *javanicus* the nape of the neck and sides of throat are grizzled, in *kanchil* there is a well defined black band from between the ears along the nape of the neck) and round the throat of a shining black, only interrupted by the well known white throat-bands. In *napu* and *stanleyanus* there are five, in *javanicus* and *kanchil* three white throat-bands meeting on the chin in a broadly developed white spot; in our melanistic specimens however the chin is bald, the bands along the sides of the chin are very small, hardly visible and in the Billiton-specimen only represented by a white spot on the posterior angle of the lower jaw. The three other white streaks are very small and meet together in the Banka-specimen, meanwhile in the Billiton-specimen only the central streak is complete and of the two side-streaks only the posterior half slightly is present. Belly like in *kanchil* with a very well developed dark brown colored line along its middle.

We possess a true *Tragulus kanchil* and a true *Tragulus napu* both collected too in Banka by Mr. Teysmann, and if *kidang* has the same signification as *kanchil* then *Tragulus napu* and *kanchil* may be reckoned to live both in Banka and Billiton, being *napu* in the latter locality represented by a peculiar melanistic variety.

Cercocebus cynamolgus Schreber.

Observed in Billiton by Dr. Vorderman and known by the indigenous under the name *Krah*, exactly like in Deli, Sumatra (cf. Dr. Hagen's book above mentioned, p. 80).

Semnopithecus maurus Schreber.

In Dr. Vorderman's collections from Billiton is an albino-variety of this species. He wrote me that a colony of this variety is living in the neighborhood of Gantoeng, East Billiton, where he however could not procure a specimen, but that the individual he sent to me had been presented to his wife by one of his friends and that it died shortly after its being in her possession.

It is called *lutong* or *loetong* by the indigenous, exactly like in Sumatra.

I demonstrated in 1889, Notes from the Leyden Museum, p. 217, that *S. pruinosus* Desmarest is a mere variety of *S. maurus* Schreber.

In conclusion the following Mammals are stated to inhabit the island of Billiton:

<i>Semnopithecus maurus</i> (albino-variety).	<i>Cervulus muntjac</i> .
<i>Cercocebus cynamolgus</i>	<i>Tragulus napu</i> (melanistic variety).
<i>Tarsius spectrum</i> .	<i>Tragulus kanchil</i> (?).
<i>Sciuropterus vordermanni</i> .	<i>Tupaja javanica</i> .
<i>Sciurus albiceps</i> .	<i>Rhinolophus trifolius</i> .
» <i>sorycinus</i> .	<i>Vesperugo vordermanni</i> .
» <i>notatus</i> .	<i>Vespertilio muricola</i> .
» <i>prevostii</i> (introduced).	<i>Emballonura semicaudata</i> .

NOTE XXXII.

ON A COLLECTION OF BIRDS FROM FLORES,
SAMAO AND TIMOR

BY

J. BÜTTIKOFER.

Last month the Leyden Museum received a small number of birds, presented by Dr. H. ten Kate, who had collected them during his recent voyage through the above mentioned islands. Though most of the 29 species are already mentioned in the list given by Wallace, P. Z. S. 1863, p. 484, I do not hesitate to give an enumeration of ten Kate's collection, the more as it has given me the chance of describing a new species of *Tropidorhynchus*, years ago discovered by Forsten and sent over since by Mr. van Lansberge, Prof. Max Weber and now contained in ten Kate's recent collection.

1. *Collocalia* spec. ?

Two nestlings from Samao.

2. *Merops ornatus*, Lath.

One specimen from Samao.

3. *Anthus rufulus*, Vieill.*Anthus medius*, Wall. P. Z. S. 1863, p. 488.

One specimen from Samao.

Notes from the Leyden Museum, Vol. XIII.

4. *Pratincola caprata* (L.).

Adult male and female from Kupang (Timor), and an adult male from Samao.

5. *Oreivola melanoleuca* (Vieill.).

Adult male and female from Samao and Kupang (Timor). A third specimen, with the plumage of the female but the tail as in the adult male (from Samao), seems to be a young male in transitional stage of plumage.

There is much difference in the distribution of white in this species, though hardly sufficient to base different species upon. Amongst the 15 specimens now in the collections of the Leyden Museum, there are three in which the white superciliary stripe is absolutely wanting, while the fourth shows some very slight traces of them. This form considered to be a species, would have to bear the name of *O. luctuosa* (Bp. Consp. I, p. 304). The base of the four outer pairs of tail-feathers is white in this form, the white occupying one basal third in the outermost pair and increasing in extent on the next pairs, the two basal thirds of the fourth pair being white.

The other form, with a distinct white superciliary stripe, might again be divided into a form with the white base of the tail-feathers like in the above mentioned form [the typical specimens of *O. melanoleuca* (Bp.)], and another with only the extreme base of the tail-feathers white.

There is no noticeable difference in size between the three mentioned forms, and all three seem to be spread over one and the same area. Of the three birds sent by Dr. ten Kate, all three with a well-pronounced superciliary stripe, the adult male would belong to the third group, with only the extreme base of the four outermost pairs of tail-feathers white, while the not fully adult male, with the fourth pair of tail-feathers white at about half its length, seems to be intermediate between the second and third group.

6. *Siphia hyacinthina* (Temm.).

An adult female from Kupang (Timor) and another from Samao.

7. *Rhipidura rufiventris* (Vieill.).

Two specimens from Kupang (Timor).

8. *Piezorhynchus trivirgatus* (Temm.).

An adult specimen from Kupang (Timor).

9. *Monarcha inornata* (Garn.).

One specimen from Kupang (Timor).

10. *Artamus leucogaster* (Val.).

One specimen from Kupang (Timor) and another from Endeh (Flores).

11. *Artamus perspicillatus*, Bp.

One specimen from Samao.

12. *Lalage timoriensis* (S. Müll.).

An adult male from Kupang (Timor).

13. *Pachycephala orphea*, Jard.

Three specimens from Kupang (Timor).

14. *Corvus macrorhynchus*, Wagl.

An immature specimen with the lower mandible white at the base, from Kupang (Timor).

15. *Tropidorhynchus timoriensis*, S. Müll.

An adult male with the characteristical white lateral edging of the crown, from Kupang (Timor).

16. *Tropidorhynchus neglectus*, n. sp.

Tropidorhynchus timoriensis, Wall. (part.) P. Z. S. 1863, p. 486.

Philemon timoriensis, Gadow (part.), Cat. Birds Br. Mus. Vol. IX. p. 273; — Guillemard, P. Z. S. 1885, p. 509 (ex Sumbawa).

Similar to *T. timoriensis*, but the silvery whitish edge along each side of the crown, thoroughly mentioned by S. Müller in his original description of the latter species, entirely wanting.

General color above brownish gray, underneath paler, centre of abdomen and under tail-coverts almost white, crown somewhat more fulvous than the back, not flanked with white, the feathers of the hind neck in adult birds like the crown or but little lighter, only in immature specimens forming a more or less silvery white collar. Tail like upper surface, tipped with white. Front and whole sides of head except the ear-coverts bare, the latter very dark brown, nearly black, chin and throat silvery white, with black shaft-streaks on each feather, feathers on lower throat and chest similar in color and lanceolate. Bill, well-developed knob on the culmen, naked parts of the head, and feet black.

Measurements like in *T. timoriensis*: wing 13,6—15 cm.; tail 1,2—1,5 cm.; tarsus 3,8 cm., bill from behind the hump to the tip 4,2—4,5 cm.

Hab. Lombok (probably), Flores, Sumbawa, where it represents *T. timoriensis*, which latter inhabits Timor and Wetter.

Already some years ago, when looking through a collection of birds we had received from Mr. van Lansberge, and amongst which was a *Tropidorhynchus*, I was struck by the want of the silvery stripe which flanks the crown in *T. timoriensis*, and found that another specimen in the Leyden Museum, collected by Forsten at Bima (Sumbawa), and a third, collected by Semmelink at Larantuka (Flores), differed in the same way from our Timor-specimens, wherefore I gave these specimens the manuscript name *T. neglectus*.

Since that time we received three other specimens of this long overlooked species from Prof. Max Weber, who collected them at Maumeri and Reo on the South Coast of Flores; and two specimens from Endeh, also South Coast of Flores, which are contained in Dr. ten Kate's present collection, prove to belong to the same species, while a third, collected at Kupang (Timor), has the silvery edgings to the crown which are particular to *T. timoriensis*.

The specimen from Sumbawa, presented by Mr. van Lausberge, is not fully adult. The knob on the culmen is feebly developed, the whitish collar on the hind neck very conspicuous, throat and chest are not as white as in the adult, but strongly tinged with olive brown, and the feathers on the back show conspicuous terminal white edgings.

17. *Ptilotis limbata* (S. Müll.).

One specimen from Kupang (Timor).

18. *Ptilotis reticulata* (Temm.).

Three specimens from Kupang (Timor).

19. *Myzomela vulnerata* (S. Müll.).

An adult female from Kupang (Timor).

20. *Zosterops citrinella*? Bp.

Two specimens from Kupang and two from Amarassi (Timor). All four specimens differ from our typical *Z. citrinella* in being much paler. The upper surface is olive green with a very strong grayish tinge, the lower silvery gray instead of isabelline. The yellow on the front does not extend over the upper surface of the head, this latter being of the same color as the back, and the yellow on the throat is not spread over the upper breast. These differences would be sufficient to base a new species upon, but

the birds having been preserved in spirits, it would be rather venturous to do so, as they might have been bleached in the liquor.

21. *Zosterops mülleri* (Hartl.).

One specimen from Kupang (Timor).

22. *Dicaeum mackloti*, Müll. & Schl.

A male and two females from Kupang (Timor).

23. *Cinnyris pectoralis* (Horsf.).

An adult female, from Samao. This species has not yet been recorded from Timor.

24. *Cinnyris solaris* (Temm.).

An adult male from Kupang (Timor).

25. *Munia quinticolor* (Vieill.).

One specimen from Kupang and three from Amarassi (Timor).

26. *Munia fuscata* (Vieill.).

Three adult specimens from Kupang and two from Amarassi (Timor).

27. *Taeniopygia insularis* (Wall.).

Two specimens (♂, ♀) from Kupang (Timor), and five (2 ♂, 3 ♀) from Samao. This species is, moreover, represented in the Leyden Museum by specimens from Sumbawa, Letti and Kisser.

28. *Charadrius geoffroyi*, Wagl.

Charadrius leschenaulti, Wall. P. Z. S. 1863, p. 487.

Adult male and female, both from Kupang (Timor). The

male with the red on head and collar not fully developed; the female shows no trace of red at all.

29. *Parra gallinacea*, Temm.

Parra cristata, Schl. (nec Vieill.) Mus. P.-B. Ralli, p. 68; id. Dierentuin, p. 265 (cum fig.).

An adult specimen from Kupang (Timor), which fully agrees with our specimens from Celebes. This species has not been recorded from Timor before, and the locality »Java" mentioned for it in Gray's »Handlist" seems to be very doubtful.

Leyden Museum, August 1891.

NOTE XXXIII.

ON LEPUS NETSCHERI SCHLEGEL, FELIS MEGALOTIS MÜLLER AND ANOA SANTENG DUBOIS

BY

Dr. F. A. JENTINK.

August 1891.

Lepus netscheri Schlegel.

The type-specimen of this species described by me in the Notes from the Leyden Museum, 1880, p. 62, has been figured on plate I of the work entitled: »Bijdragen tot de kennis der Fauna van Midden-Sumatra, 1887". Although there is no reason to suppose that it is a very rare species, it nevertheless is a fact that it very seldom has been observed.

Mr. P. J. van Houten, formerly at Padang, related (see Fauna van Midden-Sumatra, p. 23) that he was told that there has been seen a Hare in a coffeeplantation in the neighborhood of Padang.

In March 1887 Mr. J. L. Weyers at Païnan, West Sumatra, wrote to Mr. C. Ritsema Cz., the well known Entomologist in the Leyden Museum, about *Lepus netscheri* as follows:

»En décembre 1881 Mr. I. A. Harten, Directeur-gérant de la mine de Salida, qui occupe encore actuellement les mêmes fonctions, se trouvait avec le mécanicien de la mine sur les bords de la baie de Païnan, surveillant le débarquement d'une machine, à peu de distance du promontoire situé à la partie septentrionale de cette baie et qui fait face à deux petites îles, nommées Poeloe tjinko besaar et

Poeloe tjinko ketjil. Son attention fut attirée par un group d'indigènes entourant un petit animal mort, qu'ils semblaient examiner avec curiosité et étonnement; il s'approcha à son tour pour examiner cet animal et fut fort étonné de constater que c'était un lièvre; c'était le premier animal de ce genre qu'il voyait depuis son arrivée aux Indes qui datait de plusieurs années déjà. Il demanda naturellement quelques renseignements aux indigènes; ceux-ci lui répondirent qu'ils ne connaissaient pas cet animal et que c'était la première fois qu'ils en voyaient un spécimen. Mr. Harten, n'étant pas naturaliste, n'attacha pas une grande importance à ce fait et ne s'en pré-occupa plus; mais, lui ayant montré dernièrement la planche qui représente le *Lepus netscheri* dans l'ouvrage de l'expédition de Midden-Sumatra, que l'on m'avait communiqué, il reconnut immédiatement l'animal à ses oreilles relativement courtes pour le genre et aux particularités si remarquables de son pelage.

Des faits cités dans l'ouvrage de l'Expédition de Midden-Sumatra et de celui que je communique, il résulte évidemment que le *Lepus netscheri* est une espèce excessivement rare, du moins dans la partie de Sumatra où on l'a rencontré jusqu'ici, très accidentellement sans doute; il est non moins évident qu'il est confiné à cette grande île où il forme une espèce bien spéciale et distincte. — Le fait que cet animal est totalement inconnu aux indigènes de cette partie de Sumatra, semblerait démontrer que les rares spécimens rencontrés jusqu'ici, l'ont été tout à fait accidentellement et que ce n'est pas là que se trouve sa véritable localisation. Si nous raisonnons par analogie, en prenant en considération les habitudes et le genre de vie des espèces du genre *Lepus*, nous voyons qu'elles habitent les contrées tempérées et même septentrionales de notre globe; nous serons donc tentés de supposer qu'on pourra s'attendre à rencontrer le *Lepus netscheri* sur les hauts plateaux ou les hautes montagnes de l'intérieur, et que c'est bien là son véritable habitat.

Peut-être est ce bien là le cas et peut-être aussi nous trouvons-nous en présence d'un de ces cas de localisation très restreinte et assez étrangement exceptionnelle, comme on en rencontre assez souvent en entomologie, mais qui sont beaucoup plus rares pour les mammifères. Les rares naturalistes qui ont parcouru l'intérieur de Sumatra ont peut-être passé quelquefois près du *Lepus netscheri* sans s'en douter."

I am very indebted to Mr. Ritsema for the kind permission to publish the foregoing letter, which will interest naturalists, the more as I can hereafter add an extract from a letter received on June 23 last and written by Mr. J. C. van Hasselt, Controller at Solok, Sumatra. Mr. van Hasselt writes: »I possess a female specimen of *Lepus netscheri* described in the Notes from the Leyden Museum, 1880. I procured the animal when alive: after its dead I put it in spirits." Although some observations about the living animal would have been very welcome, these short lines suffice to convince us that a second specimen of *Lepus netscheri* has now been secured, and I express the hope that we will have it in Leyden at a not very remote date.

Felis megalotis S. Müller.

Again a very rare species, only known from the type-specimen in the Leyden Museum, described in the work entitled: »Verhandeligen over de Natuurlijke Geschiedenis der Nederlandsche Overzeesche Bezittingen, Zoologie, p. 54, 1839—44." — I am not aware that any traveller or naturalist has seen the species or has brought over a specimen. The type is a not adult specimen from Timor.

Giebel (*Die Säugethiere*, 1855) remarked: »vielleicht ist Müller's *Felis megalotis* von Timor nur eine blosse Varietät von *Felis minuta* Temminck."

Blyth (*P. Z. S. L.* 1863, p. 186) said: »*Felis megalotis* Temminck. Hab. Timor. (non vidimus)."

Dr. Gray has enregistered it in his Catalogue of Carnivorous, 1869, p. 33 and in P. Z. S. L. 1867, p. 275, in the following short terms: »Hab. Timor. Not seen by me.”

Dr. Mivart has given a translation of Müller’s original description (see: The Cat, an introduction to the study of Backboned Animals, 1881, p. 417). Dr. Mivart however failed to give Timor as certain locality: perhaps Mivart did so because some time before Mr. Elliot had given no credit to that locality and because Wallace (the geographical distribution of Animals, 1876, Vol. I, p. 422) too was of Elliot’s opinion, for he wrote: »the *Felis megalotis*, long supposed to be a native of Timor, has been ascertained by Mr. Elliot to belong to a different country altogether.”

The other day I received a collection of animals collected by Dr. H. ten Kate in Timor, and among other mammals he sent over a nearly full-grown male-specimen of *Felis megalotis* in spirits, with the request to expedite it to Dr. Max Weber in Amsterdam. Dr. ten Kate wrote to me that it seems to be a very rare animal, and that the Timorese call it *meo-foeik* (*meo* = cat and *foeik* = wild), the Malay *poes-oetan* (*poes* = cat and *oetan* = wood).

I think that now a second specimen from the same island has been brought over, nobody will doubt whether *Felis megalotis* really is a *Felis*-species from Timor.

Anoa santeng Dubois.

Under this name I exhibit a problematic mammal discussed by a friend of mine, who at present is in Java, Kediri Residency, excavating and studying fossils. I should not have fixed the attention of naturalists upon this mammal, were it not that my friend, Dr. Dubois himself has spoken about it — although in very short terms — in the *Natuurkundig Tijdschrift voor Nederlandsch-Indië*, 1891, Deel LI, Afl. I, p. 96. He relates there »that among

»other fossils he found bones of an *Anoa*, which should have »attained the size of a goat, and probably will turn out »to be no other dwarf-buffalo than the small *santeng*, »whereof the Javanese talk, and which differs from all »other known living and fossil species.”

Now everyone will be very anxious to hear more concerning the *santeng* and therefore I will reproduce what Dr. Dubois wrote to me: »I found small horn-cores, measuring ± 10 cm., which I at first regarded as belonging to a *Capra*-species; having however now found rather large parts of frontlets with the same mentioned horn-cores attached to it, it seems to me that they are implanted like in the typical bovine-skulls. The fore-head is about half as broad as the same part in a middle sized *karbouw*. The animal attained, I think, the size of a goat. Now I recollect having been told by several Javanese of a very small species of *banteng* — and again inquiring some old men assured me that they had *seen* the animal. A Wedono drew the head with the horns, whereby it struck me that he was not brought to confusion by my remark that the horns were bent downward, he drew the horns upward and said that the color of the animal is black, excepting the legs which are white: size somewhat larger than *kanchil*. Highly interesting is that all the reports agree in the main points, f. i. as to the form of the horns, generally described as that of the fruit of a *lombok* (red pepper) — and that they accord, as far as it seems to me, with the fossil form. I think the small size ascribed to the animal to be a common exaggeration, like all relating originating from a not fresh source. This paradoxical animal generally is known under the name *santeng* and I therefore think to do homage to the Javan mind to natural history in calling the fossil animal later on *Anoa santeng*. The form of horns and of molars and its size make it namely very probable that it belongs truly to the same genus as the Celebian species.”

So far Dr. Dubois. Although it may be that he is quite

right as to his new fossil, before having seen its skin, skull and horns I cannot believe that in Java an animal of such a rather large size still should be living, for I am of the opinion of Wallace who expressed his view about unknown mammals in Java as follows: »we should be almost as likely to find new species of (large) mammals in Central Europe as in Java.”

NOTE XXXIV.

SYNOPSIS AND ALPHABETICAL LIST
OF THE DESCRIBED SPECIES OF THE COLEOPTEROUS
GENUS HELOTA McL.

BY

C. RITSEMA Cz.

SYNOPSIS OF SPECIES. ¹⁾

- I. Base of elytra coloured as apex.
- A. Elytra with four convex flavous spots.
- a. Pronotum rugose, with raised patches.
- α. Elytra regularly punctate-striate all over.
- ×. Upper surface bright metallic green, flavous elytral spots large.
- *. Apical half of antennae pitchy black; narrowed front-portion of head finely punctured *Vigorsii*. ²⁾
- **. Antennae entirely pale fulvous; narrowed front-portion of head strongly punctured *scintillans*.
- ××. Upper surface coppery red or dark bronze, flavous elytral spots small.
- †. Upper surface and elytral epipleurae bronze coloured.
- *. Sides of prothorax reddish testaceous. *Feae*.
- **. " " " coloured as the disc. *Vandepolli*.
- ††. Upper surface and elytral epipleurae coppery red.

1) For a summary of the principal divisions with reference to the pages, see p. 232.

2) As to the author-names I refer to the alphabetical list of species.

- . Lateral streaks of pronotum irregularly confluent punctured, leaving some smooth interspaces. — ♂. Apices of elytra conjointly rounded, with a spine at the suture. — ♀. Apices of elytra not or slightly prolonged.
- » ♂. Anterior tibiae with a small compressed dilatation a little *before* the apex of the inner margin or without it. — ♀. Apices of elytra slightly prolonged, last ventral segment rounded posteriorly.
- » ♂. Anterior tibiae with a small dilatation, hindlegs of normal length. — ♀. Apices of elytra dehiscent. *Servillei*.
- »» ♂. Anterior tibiae without dilatation, hindlegs very slender and elongate. — ♀. Apices of elytra not dehiscent *longipes*.
- » ♂. Anterior tibiae with a very conspicuous compressed dilatation *at* the end of the inner margin. — ♀. Apices of elytra conjointly rounded, last ventral segment broadly truncate posteriorly. *Fairmairei*.
- . Lateral streaks of pronotum regularly densely punctured, without smooth interspaces. — ♂. Apices of elytra faintly bidentate near the suture (about as in *Vigorsii*). — ♀. Apices of elytra acutely prolonged, last ventral segment truncate in a bisinuate manner. *Oberthüri*.
- β. Elytra punctured in rows near the suture, the remaining portion irregularly punctured; flavous elytral spots small.
- §. Space between the suture and the line which unites the centres of the flavous

spots provided with four rather regular rows of punctures.

- *, Outer half of elytra more or less punctured in rows, its sculpture not strongly contrasting with that of the inner half. Abdomen dark coloured in the middle, the margins rufous. — ♂. Last ventral segment without tomentose impression, its apical margin faintly trisinate. — ♀. Last ventral segment triangular with rounded tip. *Kolbei*.
- **, Outer half of elytra rugose in consequence of the extremely dense puncturation, its sculpture therefore strongly contrasting with that of the inner half. Abdomen rufous. — ♂. Last ventral segment with a tomentose impression. — ♀. Last ventral segment strongly transverse.
- », 3rd and 5th interstices (the sutural one reckoned as the 1st) continuous, here and there with a large puncture. — ♂. Anterior tibiae with a compressed dilatation at the end of the inner margin. — ♀. Apices of elytra pointed, last ventral segment with an impression at the apex *gemmata*.
- »», 3rd and 5th interstices divided by the often coalescing bordering striae into detached ovate portions. — ♂. Anterior tibiae without dilatation at the end of the inner margin. — ♀. Apices of elytra separately rounded, last ventral segment without impression at the apex *fulviventris*.
- §§. The two innermost striae only rather regular.

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- Θ. Raised thoracical patches impunctate or nearly so. (Large or moderately large species: $18\frac{1}{2}$ mm. — $12\frac{1}{2}$ mm.).
 - α. ♀. Apices of elytra rather bluntly prolonged; last ventral segment as long as the 3rd and 4th taken together. — ♂. Middle of metasternum with a tomentose spot, sutural spine very distinct. *Gorhami*.
 - αα. ♀. Apices of elytra very acutely prolonged; last ventral segment decidedly shorter than the 3rd and 4th taken together. — (♂ unknown). *caudata*.
- ΘΘ. Raised thoracical patches punctured. (Smaller species: $8\frac{1}{2}$ mm. — $9\frac{1}{4}$ mm.).
 - ×. Sides of prothorax finely crenulate (each with 12—14 crenulations); under surface and legs dark pitchy brown *sinensis*.
 - ××. Sides of prothorax coarsely crenulate (each with 8 or 9 crenulations); middle of sterna and the abdomen pale fulvous; femora pale fulvous with green tips, tibiae and tarsi alternately pitchy and pale fulvous. *thibetana*.
- b. Pronotum more finely and evenly punctured, without raised patches.
 - α. Prosternum entirely fulvous.
 - ×. Legs partly fulvous, partly metallic green.
 - †. Tips of femora and the tibiae metallic green.
 - *. Anterior and posterior elytral spots situated between the same striae, viz. between the 3rd and 7th *Guerinii*.
 - **.

5. Anterior spots between the 4th and 6th, the posterior ones between the 3rd and 6th striae *curripes*.
22. Anterior spots between the 4th and 7th, the posterior ones between the 3rd and 7th striae *ocellata*.
222. Anterior spots between the 4th and 7th, the posterior ones between the 3rd and 6th striae.
- ». Outer margin of elytra entire. . . *Dohertyi*.
- »». Apical third of outer margin of elytra serrulate *serratipennis*.
- ††. Tips of femora metallic green; tibiae pitchy, marked with brown-red on the apical half; the spots on the elytra between the 3rd and 6th striae *rotundata*.
- ××. Legs fulvous, without metallic green, and, especially in the ♂, very slender and elongate. *laevigata*.
- β. Prosternum fulvous in the middle, lateral portions metallic green.
- §. Tibiae entirely metallic green.
- *. Shape narrow (long. $7\frac{1}{2}$ — $8\frac{1}{2}$ mm.; lat. $2\frac{1}{4}$ — $2\frac{1}{2}$ mm.); coppery bronze; anterior elytral spots between the 4th and 6th, the posterior ones between the 3rd and 6th striae. *cereopunctata*.
- **. Shape broader (long. 8 mm.; lat. 3 mm.); bronze green; elytral spots between the 3rd and 6th striae. *brevis*.
- §§. Tibiae metallic green at the base, the rest fulvous.
- Θ. Anterior and posterior elytral spots between the same striae, viz. between the 3rd and 7th.
- ×. Prothorax quadrate. *Gestroi*.
- ××. » narrowed to the front (trapezoidal).

ALPHABETICAL LIST OF SPECIES.

Helota

MacLeay. *Annulosa jaranica*, 1825, p. 42; *Ed.*

Lequien, 1833, p. 151.

- africana** Olliff. *Ann. a. Mag. Nat. Hist.* (5) Angola.
XIII, 1884, p. 479. — *Aid Ident. Ins.*
t. 153, *f.* 3.
- Boysii** Rits. *Notes Leyd. Mus.* XI, 1889, India.
p. 189.
- brevis** Rits. *Notes Leyd. Mus.* XIII, 1891, Borneo.
p. 199.
- caudata** Rits. *Notes Leyd. Mus.* XI, 1889, China.
p. 102.
- cereo-punctata** Lewis. *Ent. Mo. Mag.* XVII, Japan.
1881, p. 255. — *Aid Ident. Ins. t.* 133, *f.* 1.
- costata** Rits. *Notes Leyd. Mus.* XI, 1889, Zanzibar.
p. 108.
- culta** Olliff. *Cist. Ent.* III, 1883, pp. 55 India bor.
and 101; *t.* 3, *f.* 2.
- curvipes** Oberth. *Coleopt. Norit.* 1, 1883, Himalaya.
p. 60. — Rits. *Notes Leyd. Mus.* XI,
1889, p. 105. — *id. Ann. Mus. Civ.*
Genova, XXX, 1891, p. 889.
- difficilis** Rits. *Ann. Mus. Civ. Genova*, XXX, Burma.
1891, p. 896.
- Dohertyi** Rits. *Ann. Mus. Civ. Genova*, XXX, „
1891, p. 898.
- dubia** Rits. *Ann. Mus. Civ. Genova*, XXX, „
1891, p. 901.
- Fairmairei** Rits. *Notes Leyd. Mus.* XI, 1889, Sikkim.
p. 101.
- Feae** Rits. *Ann. Mus. Civ. Genova*, XXX, Burma.
1891, p. 886.
- fulvitaris** Rits. *Notes Leyd. Mus.* XI, 1889, Darjeeling.
p. 107.

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- fulviventris** Kolbe. *Arch. f. Naturgesch.* LII, 1, Korea.
1886, p. 182; t. 11. f. 25. — Rits. *Notes Leyd. Mus.* XI, 1889, p. 104.
- gemmata** Gorb. *Trans. Ent. Soc. London*, 1874, Japan
p. 448 (pars)¹⁾. — Reitter. *Verhandl. naturf. Ver. Brunn*, XIV, 1876, p. 65;
t. 1, f. 1—5. — Harold. *Abhandl. naturw. Ver. Bremen*, V, 1876, p. 119. —
Rits. *Notes Leyd. Mus.* XI, 1889, p. 104. —
id. *Ann. Mus. Civ. Genova*, XXX, 1891,
p. 888.
- Gestroi** Rits. *Ann. Mus. Civ. Genova*, XXX, Burma.
1891, pp. 893 and 900.
- Gorhami** Olliff. *Cist. Ent.* III, 1883, pp. 53 China.
and 56. — Kolbe. *Arch. f. Naturgesch.*
LII, 1, 1886, p. 181. — Rits. *Notes Leyd.*
Mus. XI, 1889, p. 102.
- Guerinii** Hope. *Coleopt. Manual*, III, 1840, Travancore.
p. 188. — Olliff. *Cist. Ent.* III, 1883,
pp. 54, 56 and 100 (without synonyms);
t. 3, f. 1. — Rits. *Notes Leyd. Mus.* XI,
1889, p. 105.
- guineensis** Rits. *Notes Leyd. Mus.* XI, 1889, Assinia.
p. 108.
- immaculata** Rits. *Ann. Mus. Civ. Genova*, XXX, Burma.
1891, p. 895.
- Kolbei** Rits. *Notes Leyd. Mus.* XI, 1889, China.
p. 103. — id. *Ann. Mus. Civ. Genova*,
XXX, 1891, p. 889.
- laevigata** Oberth. *Coleopt. Novit.* I, 1883, Darjeeling.
p. 59. — Olliff. *Cist. Ent.* III, 1884,
p. 100. — *Aid Ident. Ins.* t. 144, f. 1.

¹⁾ A very badly drawn figure of this species is published on plate 133 (fig. 2) of Waterhouse's *Aid to the Identification of Insects*. — If the larva described and figured by Sidney Olliff (*Cist. Ent.* III, p. 52; pl. 3, f. 8) belongs to this or to the foregoing species I cannot say, Mr. Lewis having captured both species.

- longipes** Rits. *Notes Leyd. Mus.* XI, 1889, Sikkim.
p. 101.
- notata** Rits. *Ann. Mus. Civ. Genova*, XXX, Burma.
1891, p. 900.
- Oberthüri** Rits. *Notes Leyd. Mus.* XI, 1889, Darjeeling.
p. 100.
- ocellata** Rits. *Notes Leyd. Mus.* III, 1881, Java.
p. 79. — id. *l. c.* XI, 1889, p. 105.
- pusilla** Oberth. *Coleopt. Novit.* I, 1883, Darjeeling.
p. 60. — Olliff. *Cist. Ent.* III, 1884,
p. 101. — *Aid. Ident. Ins. t.* 144, f. 2.
- rotundata** Rits. *Ann. Mus. Civ. Genova*, XXX, Burma.
1891, p. 891.
- scintillans** Olliff. *Cist. Ent.* III, 1884, p. 99. Java.
- semifulva** Rits. *Notes Leyd. Mus.* III, 1881, „
p. 80. — Olliff. *Cist. Ent.* III, 1883,
p. 57. — *Aid. Ident. Ins. t.* 153, f. 4.
- serratipennis** Rits. *Ann. Mus. Civ. Genova*, Burma.
XXX, 1891, p. 890.
- Servillei** Hope. *Coleopt. Manual*, III, 1840, Poonah.
p. 187; t. 3, f. 4. — Rits. *Notes Leyd.*
Mus. XI, 1889, p. 100.
- sinensis** Olliff. *Cist. Ent.* III, 1883, p. 54; China.
t. 3, f. 3.
- thibetana** Westw. *Ann. u. Mag. Nat. Hist.* Simlah.
VIII, 1842, p. 123 ¹⁾. — Rits. *Stett.*
Ent. Zeit. 1876, p. 19. — Olliff. *Cist.*
Ent. III, 1883, pp. 54 and 56. — Rits.
Notes Leyd. Mus. XI, 1889, p. 110.
- Mellii** Westw. *Cab. Orient. Ent.* 1848,
p. 86; t. 41, f. 8. — Rits. *Notes Leyd.*
Mus. XI, 1889, p. 110.
- Vandepolli** Rits. *Notes Leyd. Mus.* XIII, 1891, Borneo.
p. 197.

1) Published in October 1841.

- Vigorsii** Mac L. *Annul. Javan.* 1825, p. 43; Java.
t. 1, *f.* 9; *Ed. Lequien*, 1833, p. 152;
t. 5, *f.* 4. — *Genera des Coléopt. Atlas*,
t. 131, *f.* 2.
var. Rits. *Ann. Mus. Civ. Genova*, XXX, Labuan.
 1891, p. 885. — *id. Notes Leyd. Mus.*
 XIII, 1891, p. 197, *note*.

SUMMARY OF THE PRINCIPAL DIVISIONS,
 WITH REFERENCE TO THE PAGES.

- p.* 223. I. Base of elytra coloured as apex.
 A. Elytra with four convex flavous spots.
a. Pronotum rugose, with raised patches.
α. Elytra very regularly punctate striate all over.
p. 224. *β.* Elytra punctured in rows near the suture,
 the remaining portion irregularly punctured.
p. 226. *b.* Pronotum more finely and evenly punctured,
 without raised patches.
α. Prosternum entirely fulvous.
p. 227. *β.* Prosternum fulvous in the middle, lateral
 portions metallic green.
p. 228. B. Elytra without flavous spots.
 II. Base of elytra fulvous, apex metallic green
 or black.
 A. Apical portion of elytra metallic green; pro-
 notum entirely fulvous. (Asiatic species).
 B. Apical portion of elytra black; pronotum ful-
 vous at the sides, black along the middle.
 (African species).

Leyden Museum, August 1891.

NOTE XXXV.

TWO NEW SPECIES OF THE LUCANOID GENUS
CYCLOMMATUS, PARRY

DESCRIBED BY

C. RITSEMA Cz.*Cyclommatus Pasteuri*, n. sp. ♂.

(Plate 10, fig. 1).

This magnificent species, the most robust one known up to this day, may easily be recognized by the shape of the strongly porrected clypeus and by the tooth on the outer margin of the under surface of the mandibles near to the base.

Length 54 mm., breadth at the shoulders 14 mm. — The colour of the insect is bronze green with faint coppery tinges, the elytra and upper side of the femora pale yellowish brown with a metallic green and coppery hue; the teeth of the mandibles glossy black, and the palpi and antennae dark pitchy brown; the thickened outer margin of the elytra and the elytral epipleurae are metallic green, the sutural margins narrowly edged with pitchy brown.

The whole insect is sparsely covered with elongate hair-like white scales which on the elytra are only present along the basal and lateral margins and on the epipleurae; on the legs and abdomen these scales are very small, on the tarsi they are wanting; the under surface of the tarsi and of the tibiae and the tip of the mentum are clothed with golden ferruginous hairs.

The mandibles are broadest at the base and strongly curved downwards in their apical half; their outer margin

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rather regularly convex, their inner margin armed, a little before the base, with a small tooth, and midway between this and the large post-median tooth two very small teeth are present, which are accompanied by some inconspicuous undulations of the margin; the ante-apical tooth is strong and obliquely truncate at the tip, and between it and the apex of the mandible are four small teeth. Moreover the mandibles are provided on the outer margin of their under surface, a little before the base, with a very distinct tooth. The mandibles are extremely densely and finely granulated and thereby opaque, with the exception, however, of the tips of the teeth and the apical portion which are glossy.

The upper side of the head shows a large semilunar flattened depression which does not quite extend to the front-margin of the thorax; laterally this depression is bordered by a sharply raised margin, which is continued to the sides in front of the eyes; outside of this margin the sculpture of the head is very rough in consequence of irregularly arranged ridges, the interspaces of which show some punctures. In front of the semilunar depression, the front-margin of which is bisinuate, the head slopes slowly and ends in the middle in a processus which widens out at the tip and has the front-margin broadly emarginate in the middle.

The sides of the prothorax are angular about the middle; the front-margin is accompanied by a very regularly continued narrow groove, and a shallow impression runs along the middle. The sculpture of the pronotum is similar to that of the mandibles and of the depressed and declivous portion of the head, but coarser, especially at the sides, and along the middle the granulations are replaced by some large punctures.

The elytra are subshining in consequence of an extremely fine sculpture which is somewhat coarser at the extreme base and is wanting along the suture where a few small but distinct punctures occur. Two faint longitudinal costae are present on each elytron.

The under surface of the head and the sterna are densely and finely granulated, the abdomen and femora shallowly punctured, each puncture bearing a narrow white scale. The prosternum is keeled along the middle, and the intercoxal part strongly elevated and, posteriorly, compressed. The metasternum has, just behind each intermediate coxa, an excavation, which excavations are separated by the raised anterior portion of the central line.

The fore-tibiae are straight, not very elongate, and without any spine on the outside.

The described male-specimen, a representative of the forma maxima, originates from Padang Sidempoean (Tapanoeli Residency: West Sumatra) and has been offered last year to the Leyden Museum, together with other very interesting beetles from the same locality, by Mr. J. D. Pasteur, whose name I have much pleasure in associating with this conspicuous species.

Cyclommatus canaliculatus, n. sp. ♂, ♀.

Likewise a very interesting species and easily recognizable by the very distinct median groove on the pronotum, which groove becomes deeper towards the base in consequence of the raising margins. Moreover the outer upper margin of the mandibles is notched at some distance from the tip so as to form here a small tooth.

Length of a male of the forma maxima 50 mm., breadth at the shoulders 11 mm. — Dark red-brown, with faint tinges of metallic green and purple, the margins of the mandibles and of the prothorax, the front-margin of the head and the outer margin of the elytra blackish; the antennae and tarsi pitchy black, the upper side of the femora pale yellowish brown.

The whole insect is sparsely (from abrasion?) covered with small ovate dirty grey scales; the tarsi are glabrous with the exception of the under surface which is densely covered with pale ferruginous hairs.

The mandibles are long, as long as the distance between the front-margin of the head and the posterior coxae, their outer margin is straight at the basal third, thence slowly curved inwards and downwards, their inner margin armed at about one third of its length with a strong tooth which is slightly directed forward; between the ante-apical tooth, which is obliquely truncate at the tip, and the apex of the mandible three small teeth are present. On the apical third of the mandibles the outer upper margin rises slowly, but opposite the front-margin of the ante-apical tooth this raised margin ends suddenly so as to form here a small toothlike projection. The mandibles are densely and extremely finely granulated, sub-opaque, with the exception, however, of the apical portion which is glossy.

The upper side of the head shows a large flattened depression, which extends as far as the front margin of the thorax; laterally the margin of this depression is slightly raised and joins the sides of the head in front of the eyes; outside of this depression the head is roughly sculptured, the sculpture of the depression itself is similar to that of the mandibles but somewhat coarser. The front-margin of the head between the outer margins of the mandibles is broadly bisinuate, and beneath it the head is deeply excavated; the clypeus is slightly declivous, its front-margin bisinuate, the middle lobe slightly upturned.

The sides of the prothorax have an angular tooth about the middle; the front-margin is accompanied by a groove which is interrupted in the middle and widened out towards the sides; along the middle a distinct groove is present¹⁾, which at the base of the thorax becomes deeper in consequence of the raising margins. The pronotum is very densely sculptured, and the narrow interspaces are irregularly flowing together.

The clytra are rather densely covered with very distinct punctures, very densely however along the base and sides;

1) A faint continuation of this groove is to be observed on the base of the head.

each elytron shows two indistinct costae, of which the outermost runs along a raised streak ending in the apical callus, and moreover a longitudinal impression commencing behind and just within the shoulder and obliquely widening out towards the suture.

The sculpture of the under surface is very fine, with a few large punctures on the glossy portions of the head. The prosternal process is narrow and conically projecting. The fore-tibiae are straight and unarmed.

Length of a male of the *forma media* 36 mm., breadth at the shoulders $8\frac{1}{2}$ mm. — Agreeing with the *forma maxima*, but the colours are brighter and the insect is more densely covered with scales.

The mandibles are shorter, having the length of the distance between the front-margin of the head and the intermediate coxae; they are more regularly curved inwards along their whole length, and the strong ante-basal tooth is replaced, very near to the base, by a broad process which is bicuspidate on the left, tricuspidate on the right mandible.

The front-margin of the head between the outer margins of the mandibles is broadly emarginate forming a regularly curved line; at this line the head sinks suddenly down towards the clypeus which is declivous and similar in shape to that of the *forma maxima*; the middle lobe of the front-margin, however, is not upturned.

On the thorax the groove which accompanies the front-margin is inconspicuous, and that along the middle less distinct, but at the base the raised margins are still observable.

The longitudinal impressions on the elytra are less distinct, and the prosternal process not so strongly projecting. The tibiae are likewise unarmed.

Length of a female $18\frac{1}{2}$ mm., breadth at the shoulders $6\frac{1}{2}$ mm. — The colour is dark red-brown, the upper side of the femora, however, pale yellowish brown, the tarsi, antennae, palpi and apical half of mandibles pitchy black. The head has a round spot on the centre and another behind each eye blackish with a bronze hue; the central

one is convex. On the pronotum two stripes, an elongate central spot and a spot on the middle of the sides touching the margins are bronze black, and these markings are more or less united along the margins of the thorax. The scutellum and the sutural and lateral margins of the elytra are blackish, the latter with a bronze hue, and an indistinct infusate stripe runs from the shoulders backwards. The punctuation is strong, somewhat finer but closer set on the elytra than on the head and pronotum. The under surface is bronze coloured and, as well as the legs, covered with a scale-bearing punctuation. Besides the apical tooth, the foretibiae have on their outer margin three sharp teeth which become larger towards the end of the tibiae; the middle- and hind tibiae are armed beyond the middle with a distinct tooth.

Hab. The island of Nias, West of Sumatra. — The described three specimens were presented to the Leyden Museum by Mr. J. D. Pasteur.

As yet only five species of Lucanidae are known from Nias, and these are all-together represented in the Leyden Museum, viz. *Cyclommatus Maitlandi* Parry, *Cyclommatus canaliculatus* Rits., *Odontolabis gracilis* Kaup, *Odontolabis inaequalis* Kaup and *Eurytrachelus Titan* Boisd.

N.B. Together with *Cyclommatus Pasteuri* Rits. ♂, the following beetles are represented on plate 10:

- Fig. 2. *Lamprophorus nepalensis* Gray, bred from the larva (fig. 2a) by Mr. J. D. Pasteur (see: Tijdschrift voor Entomologie, Vol. XXXIV (1891), p. CXIV).
- Fig. 3. *Noëmia apicicornis* Rits. ♂, from East Sumatra (Notes Leyden Museum, XII (1890), p. 136).
- Fig. 4. *Eurybatus inexpectatus* Rits. ♂, from East Java (Notes Leyden Museum, XII (1890), p. 135).
- Fig. 5. *Thermonotus Pasteuri* Rits. ♂, from Nias (Notes Leyden Museum, XII (1890), p. 248).
- Fig. 6. *Atossa bipartita* Rits. ♀, from Borneo (Notes Leyden Museum, XII (1890), p. 250).

Leyden Museum, September 1891.

NOTE XXXVI.

LOMOTROPA VELLERIALIS,
NOUVELLE ESPÈCE DE PYRALIDE

DÉCRITE PAR

P. C. T. SNELLEN.

Un mâle en assez bon état. Envergure 46 mm. — Quoique cette espèce, dans le seul sexe connu jusqu'ici, se distingue fortement du mâle de la *costiflexalis* Guen. par les ailes postérieures plus larges, dont la surface est totalement revêtue de poils assez longs et soyeux mais dont le bord intérieur ne possède pas de ciliation blonde touffue, elle est d'ailleurs très-conforme à cette espèce quant aux autres caractères génériques. Je renvoie pour ceux-ci au travail de feu Lederer, Wien. Ent. Monatschr. VII (1863), et je n'hésite pas à placer ma nouvelle espèce dans le genre *Lomotropa*.

Palpes moitié blanches et brun grisâtre, ne dépassant pas le front, comme chez *costiflexalis*. Vertex brun grisâtre, finement bordé de blanc. Le collier et le thorax sont endommagés, mais le dernier montre encore des traces de lignes longitudinales jaunes comme chez l'autre espèce. Antennes sétacées, avec une ciliation très-courte et de plus sur chaque anneau avec un poil plus long. Ce dernier caractère manque chez l'espèce déjà connue.

Ailes antérieures d'un gris-brun bronzé, noirâtre vers la base, marqués de taches blanches comme chez *costiflexalis* mais à contour moins précis, elles ressortent chez cette dernière plus distinctement sur le fond gris-violet unicolore. Cependant, chez *vellerialis* la série de trois taches blan-

ches contigues le long du bord terminal manque. Les ailes postérieures sont sans dessin; elles ont pour ornement la toison touffue et soyeuse d'un gris de souris mentionnée plus haut. Frange grise.

Dessous des ailes d'un gris clair à léger reflet bronzé; sur les ailes antérieures on aperçoit les mêmes taches blanches qu'en dessus mais très-peu distinctes. La moitié basale des ailes postérieures est blanche, la seconde est marquée d'une bande blanche élargie vers le sommet, à partir de la nervure 5.

Abdomen à dos gris, marqué de deux lignes blanches interrompues, ventre blanc comme la poitrine et les pattes; tarsi de celles-ci légèrement rembrunis, les genoux et les tibias antérieurs marqués d'une petite tache brunâtre.

Hab. Iles Obi. — Capturé par feu Mr. Bernstein. (Musée de Leyde).

Rotterdam, Septembre 1891.

NOTE XXXVII.

A NEW MAMMAL FROM SUMATRA

BY

Dr. A. A. W. HUBRECHT.

A few years ago a new and interesting mammal, which is exceedingly rare, even in its native haunts, was brought to the then Resident of Palembang, Mr. A. Pruyss van der Hoeven. This gentleman who is not only an eager sportsman, but also well-versed in natural history, recognised it to be new to science and to be more closely allied to certain representatives of the Edentata, than to any other order of mammals. — The type-specimen was held in captivity for several weeks, was fed on ants and afterwards on cooked rice and was sent alive to Europe in order to be examined, described and ultimately preserved in the Royal Museum at Leyden. It unfortunately died on board the vessel, on its way to Holland, and by an unaccountable blunder on the part of one of those in charge, its remains were not preserved, but thrown overboard.

During my own stay in Sumatra from February till May 1891 I took particular trouble to obtain further information concerning this animal and have found the fact of its existence — though at the same time of its exceeding rarity! — confirmed in a way which does not allow me to doubt that ere long further specimens will be available for a thorough examination, also with respect to anatomical detail. My own attempts to secure a second specimen have as yet not been successful, but as they have turned the attention of many persons towards this animal I feel bound,

Notes from the Leyden Museum, Vol. XIII.

in deference to the claims to priority of its original discoverer, who has put his preliminary description as well as sketches of the animal at my disposal, to introduce this peculiar mammal into science, notwithstanding the type-specimen has been lost. The generic name has been selected, not with a view of indicating any closer anatomical relation with the genus *Manis*, but only to indicate that a hairy anteater is meant.

Trichomanis hoevenii, n. g. et n. sp.

Animal of the size of a very large cat. Fur grey, with a black longitudinal band along the middle of the back. Snout elongated and conical, with a small mouth at the extremity. A long cylindrical tongue, which is thrust out, serves the animal in the collecting of ants, which are its natural food. A more or less bushy tail. Ears not conspicuous. Legs higher than those of *Manis*, strong claws to the feet.

I have no doubt that this description — however superficial — is more than sufficient to recognise the animal as soon as it will have been reobtained. The type-specimen was caught in the mountainous districts that separate the Residencies of Palembang and Bencoolen in Sumatra.

Utrecht, September 7, 1891.

NOTE XXXVIII.

DESCRIPTION DE NEUF ELATÉRIDES NOUVEAUX
DU MUSÉE DE LEYDE

PAR

E. CANDÈZE.*Lacon angulicollis*, n. sp.

Brunneus, dense *fulvo-pilosulus*; *prothorace* longitudine paulo latiore, *lateribus* basi *crenulatis* et ante medium *angulatim flexis*, *dorso æquali*; *elytris* ante medium *dilatatis*, *postice attenuatis*, *leviter striato-punctatis*; *subtus sulcis tarsalibus destitutus*. — Long. 8 mill., lat. $2\frac{3}{4}$.

Hab. Java.

Non loin de *litigosus*. Il a pour caractères principaux l'absence de sillons tarsaux, l'uniformité de couleur des téguments et de la vestiture, les premiers bruns, la seconde fauve, la structure des bords latéraux du prothorax qui sont légèrement crénelés en arrière et coudés vers le tiers antérieur.

Trois exemplaires ont été trouvés par M. J. D. Pasteur dans l'ouest de Java. J'en possède, d'autre part, un grand nombre récoltés dans l'est de l'île.

Lacon feralis, n. sp.

Brunneus, confertissime *squamulis minutis fulvescentibus obductus*; *prothorace subquadrato*, paulo *convexo*, *dorso æquali*, *angulis posticis tumidis*, *apice rotundatis*; *elytris striatis*, *striis minute punctatis*, *interstitiis convexis*, *basi fere carinatis*; *subtus sulcis tarsalibus destitutus*. — Long. 21 mill., lat. 6 mill.

Hab. Sumatra occidental: Mandeling.

Notes from the Leyden Museum, Vol. XIII.

L'une des grandes espèces du genre. Sa vestiture jaunâtre est assez dense pour cacher la couleur foncière brune des téguments. Les flancs du prothorax et du métathorax n'ont pas de sillons pour recevoir les tarses au repos; le second n'en présente que des traces peu prononcées. Il est encore caractérisé par les intervalles des stries des élytres convexes. Sa place est près du *L. discedens*.

Un seul exemplaire présenté par M. le Dr. H. J. Veth.

Anthracalaus Pasteuri, n. sp.

Nigerrimus, nitidissimus, glaber; antennis articulo quarto triangulari, sequentibus sensim angustioribus; fronte inequali; prothorace latitudine paulo longiore, versus basin coarctato, lateribus et antice grosse punctato, medio parce punctulato, angulis posticis carinatis, carina prolongata; scutello brevi, tumido; elytris brevibus, a basi attenuatis, striis destitutis, levissimis. — Long. 26 mill., lat. 9 mill.

Hab. Ile Nias.

Cette belle espèce, que je dédie à M. J. D. Pasteur qui en a reçu un seul exemplaire de l'île citée ci-dessus, est la troisième du genre *Anthracalaus*, genre établi par M. Fairmaire pour les *Alaus* noirs et glabres. Celle-ci se distingue de l'*A. Westermanni*, le plus anciennement connu, par ses élytres sans stries, et du second, l'*A. Moricei*, de Cochinchine, par les angles postérieurs du prothorax fortement carénés. La carène en question est très rapprochée du bord externe et va se réunir à lui non loin des angles antérieurs. Il se fait remarquer par la brièveté relative des élytres et leur atténuation graduelle d'avant en arrière qui leur donne une forme de triangle allongé.

Megapenthes semaculatus, n. sp.

Fusco-castaneus, parum nitidus, fulvo-pubescent; antennis ferrugineis; prothorace latitudine vix longiore, a basi angustato, regulariter sat dense punctato, basi flavescente, angulis posticis acute bicarinatis, retrorsum productis; elytris fortiter

punctato-striatis, apice integris, maculis ser. flavescens; epipleuris pedibusque flavis. — Long. 8 mill., lat. 2 mill.

Hab. Sumatra oriental: Deli.

Les taches jaunes des élytres, genre de coloration exceptionnelle chez les *Megapenthes*, lui donnent un faciès d'*Eolus*. Ces taches sont disposées, les deux premières basilaires, les quatre autres marginales, à la moitié et avant l'extrémité des élytres.

Un seul spécimen, présenté par M. le Dr. H. J. Veth.

Megapenthes sericeus, n. sp.

Brunneus, nitidus, pube flavescens sericea vestitus; prothorace latitudine longiore, convexo, regulariter punctato, basitantum sulcato, angulis posticis bicarinatis; elytris punctato-striatis, apice fortiter emarginatis; subtus pedibusque concoloribus, his basi paulo pallidioribus. — Long. 12—14 mill., lat. 3—4 mill.

Hab. Sumatra oriental: Deli.

J'en ai vu trois exemplaires, présentés par le Dr. H. J. Veth, dont la taille varie beaucoup. L'espèce ne présente aucun caractère bien saillant, si ce n'est son aspect un peu soyeux dû à la pubescence.

Sa place est dans le groupe dont le *marginatus* est le type.

Cardiophorus gramineus, n. sp.

Niger, nitidus, discrete pilosulus; antennis nigris, articulo primo apice rufo; prothorace latitudine vix longiore, minus convexo, subtiliter discrete et irregulariter punctulato, angulis posticis haud pubescentioribus; elytris flavis, depressis, punctato-striatis, regione scutellari, apice maculaque laterali male definita nigris; subtus niger, pedibus flavis, femoribus nigris, unguiculis minutis simplicibus. — Long. $5\frac{1}{2}$ mill., lat. $1\frac{3}{4}$ mill.

Hab. Java occidental.

Un seul exemplaire trouvé par M. J. D. Pasteur. J'ai fait connaître récemment un *Cardiophorus* de Birmanie, le *C. seminalis*, à ongles simples, noir, à élytres jaunes ma-

culées latéralement de noir. Celui-ci est manifestement une espèce voisine, au moins sous le rapport de la coloration toute particulière; toutefois il est un peu plus grand, son prothorax est moins bombé, autrement ponctué, moins pubescent aux angles postérieurs et les taches noires des élytres autrement disposées.

Penia dubia, n. sp.

Brunneo-ferruginea, nitida, pallide longe pubescens; antennis brunneis; prothorace trapezoideo, longitudine paulo latiore, fere plano, subtilissime punctulato; elytris prothorace latoribus, punctato-substriatis, basi tantum striis fortiter impressis; tarsis bilamellatis. — Long. 10 mill., lat. 4 mill.

Hab. Java.

M. Pasteur a recueilli quatre spécimens de cette nouvelle espèce dans l'ouest de Java. Elle paraît, du reste, habiter toute l'île, car, de mon côté, je l'ai reçue en grand nombre des régions voisines de Sourabaia.

Ludius aemulus, n. sp.

Rufo-ferrugineus, nitidus, pube tenui concolore obductus; fronte paulo obscuriore, regulariter convexo et punctato; prothorace latitudine longiore, punctato, a basi angustato, dorso aequali, basi cum scutello sensim obscurioribus; elytris parum convexis, punctato-striatis, interstitiis punctatis antice gradatim subgranulatis, apice anguste emarginatis nigrescentibusque. — Long. 12 mill., lat. $2\frac{3}{4}$.

Hab. Java occidentalis.

Le prothorax est sensiblement d'un rouge ferrugineux plus brillant que les élytres. Sa forme plus aplatie et sa pubescence moins apparente le distinguent bien des autres *Ludius* indiens de même taille et également ferrugineux. Je n'ai vu que deux exemplaires, trouvés par M. Pasteur.

Agonischius taeniatus, n. sp.

Obscure aeneus, elongatus, flavo-pubescent; fronte rufa, rugosa; antennis nigris, serratis, articulo tertio sequentibus

simili; prothorace latitudine longiore, rufescente, anevittato, strangulato, crebre fortiterque punctato, angulis posticis bivaricatis, subbicarinatis; elytris prothorace latioribus, dorso depressis, fortiter punctato-striatis, obscure flavescens, regione suturali antice lateribusque cneis. — Long. 10 mill., lat. 2 mill.

Hab. Java occidental.

Cet *Agonischius* appartient à un groupe d'espèces allongées, à corselet étranglé, s'éloignant par le facies de la majorité des espèces du genre. J'ai fait connaître autrefois, sous le nom de *Corymbites coarctatus*, un Elatéride de Java qui, étant donné l'adjonction ultérieure des espèces en question, serait mieux placé dans le genre actuel.

Deux spécimens, capturés par M. J. D. Pasteur.

Glain-lez-Liége, Septembre 1891.



ARCHEY THOMAS DEMERY.

A few weeks ago we received the sad news from Robertsport of the decease of our Liberian collector A. T. Demery. This is a great loss for the sake of zoological investigation in Liberia and the neighbouring districts of Sierra Leone, and especially for our Museum which, by this death, loses its last direct connection with that part of Western Africa. As the readers of our »Notes» will remember, the collections received from Mr. Demery since about a year were very interesting, and amongst many objects contained several novelties. His last collection, made on the Sulymah River, is expected in here every day, and as soon as we will have received it, an ample list will be prepared of the birds collected by him on the mentioned river.

Leyden, Oct. 12th 1891.

J. BÜTTIKOFER.

NOTE XXXIX.

A NEW ORIENTAL SPECIES OF THE COLEOPTEROUS
GENUS CHELONARIUM

DESCRIBED BY

C. RITSEMA Cz.*Chelonarium dorsale*, n. sp.

Length 7 mm. — Elongate elliptical, much more broadly rounded in front than behind, convex (above and beneath) in the transverse as well as in the longitudinal direction so that the insect is highest just before the middle of its length. Subshining, pitchy brown, darker above than beneath and than the legs and antennae, the tarsi and the short antennal joints pale rusty red; the whole insect covered with a tomentose pubescence and moreover, especially on the upper surface, with long erect hairs; the colour of the entire pubescence is greyish yellow with the exception of an ill-defined transverse spot on the highest portion of the back where the hairs are black, which spot is very conspicuous when the insect is seen sideways.

Head entirely hidden under the prothorax, strongly and densely punctured. — Prothorax distinctly broader than long, slightly narrower than the elytra, very broadly rounded and sharply edged in front, the front-margin slightly upturned, the sides constricted before the posterior angles so as to make the latter divergent; the basal margin bisinuate, the middle-lobe subtruncate with rounded angles; the pronotum equally and rather densely covered with very distinct punctures. Scutellum as long as broad, with strongly curved

sides and rounded tip. — Elytra rather finely and irregularly punctured, having here and there the appearance of being faintly rugose, and showing traces of faint costae; the shoulders are prominent in consequence of a shallow impression along the base and a narrow deeper one along the basal portion of the lateral margins. — The under surface is very densely punctured.

Hab. Java occid. — Captured by Mr. J. D. Pasteur, who presented four specimens to the Leyden Museum.

Together with these four specimens, and from the same sources, I received two others which agree perfectly with the described ones, but they are smaller (measuring 6 mm. in length), the prothorax is more narrowly rounded in front and consequently of a narrower shape, and the pubescence is denser and of a more yellow colour. Most probably these two specimens are males, the four larger ones females.

If the above described species, which is very closely allied to *Ch. unifasciatum* Reitt. from East Sumatra (Notes Leyd. Mus. Vol. VIII, p. 219), did not possess the spot of black pubescence on the middle of the back, I should have meant to have Macleay's *Ch. villosum* before me, the short description of which (see Notes Leyd. Mus. Vol. XI, p. 47) being for the rest pretty well applicable to my insect.

Leyden Museum, October 1891.

NOTE XL.

FURTHER CONTRIBUTIONS TO THE KNOWLEDGE
OF THE HELOTA-SPECIES OF BURMA ¹⁾

BY

C. RITSEMA Cz.

Mr. René Oberthür of Rennes again sent me for identification four *Helota*-specimens from Upper-Burma, collected by Mr. Doherty in the neighbourhood of the »Mines des Rubis» at an elevation of 1200—2300 meter above the level of the sea.

These specimens belong to three species of which two are new to science; the third species, *Helota notata* Rits. ²⁾, was represented by a female specimen which is now in the collection of the Leyden Museum.

Helota ventralis, n. sp. ♀.

This species is closely allied to and strongly resembles *Helota Kolbei* Rits. ³⁾ from China, but is at once distinguished from it by the colour of the abdomen, this being bright coloured all over, not darker along the middle, by the bright colour of the femora, and by the less prolonged apices of the elytra.

Length 17—18 mm. — The entire upper surface bronze coloured, here and there with coppery and purple tinges;

1) Ann. Mus. Civ. di Genova, Vol. XXX (1891), pp. 885 and 898.

2) Ann. Mus. Civ. di Genova, Vol. XXX (1891), p. 900.

3) Notes Leyd. Mus. Vol. XI (1889), p. 103.

the two basal joints of the antennae red, the succeeding ones gradually passing into dark pitchy, the apical joint pale rufous; each elytron provided between the 3rd and 6th striae with two small convex flavous spots. Underneath the head, the pro- and mesosternum and the elytral epipleurae are coloured like the upper surface, the metasternum and abdomen however are of a uniform bright reddish testaceous colour, the former with the hinder margin and an impressed line along the middle, black; the legs are reddish testaceous with the coxae and trochanters, the apex of the femora and the base and apex of the tibiae black, the tarsi dark pitchy brown approaching to black.

Head strongly produced in front of the eyes, slightly raised along the middle, deeply punctured, the punctures on the raised portion large and remote, near the eyes they are smaller and closely set, on the narrowed front portion they are fine and remote; underneath the middle portion is sparsely and finely, the lateral portions strongly punctured.

Prothorax widest at the base, narrowing towards the front in slightly curved lines; the front angles strongly produced, rounded; the sides crenulate on their anterior half; the base deeply bisinuate, the lateral angles acute, the central lobe rounded and with a more or less distinct impression; the disk strongly and very closely punctured, with the usual raised impunctate patches. The scutellum is small and slightly transverse. The sterna are impunctate, the lateral portions of the pro- and metasternum, however, remotely covered with rather large punctures.

Elytra parallel, conjointly but not broadly rounded behind, the apices which are not dehiscent are but very little prolonged; each elytron with ten rows of punctures of which the 4th and 5th are interrupted by the flavous spots and are not continued behind the posterior ones; on the shoulders the punctuation becomes obsolete; the punctures in the rows become gradually larger towards the sides; the five inner interstices are rather broad and flat, the remaining outer ones narrow and costiform, and these

latter are often interrupted by deeply impressed punctures; the 3rd and 5th interstices show some large punctures; the interstice between the 2nd and 3rd striae becomes costiform towards the end and extends to the extreme tip of the elytra; the epipleurae are impunctate.

The abdomen is distantly covered with extremely fine but distinct punctures, and the segments have an ill-defined impression at the sides; the apical segment is not quite as long as the 3rd and 4th taken together and regularly rounded behind.

The legs are smooth, sparsely and extremely finely punctured, the anterior tibiae more distinctly punctured.

Two female specimens, one of which is now in the collection of the Leyden Museum.

Helota affinis, n. sp. ♀.

Closely allied to *Helota dubia* Rits.¹⁾ and strongly resembling it. In the new species, however, the flavous spots on the elytra are larger, the front angles of the prothorax are much more broadly rounded, and the apices of the elytra are less acuminate.

Length 8½ mm. — Very narrow and elongate, somewhat narrower than *dubia*; shining, above metallic green with bronze and coppery tinges; the antennae pale reddish testaceous, the terminal joint of the club infuscate; each elytron provided with two proportionately large flavous spots which are narrowly surrounded with bluish black; the anterior spot is situated between the 3rd and 7th striae, the posterior one between the 3rd and 8th. Underneath the head (except the throat), the lateral portions of the prosternum and the elytral epipleurae are bright golden green, the rest is testaceous; the legs reddish testaceous with the apex of the femora and the basal half of the tibiae metallic green; on the tibiae the green colour is slightly continued

1) Ann. Mus. Civ. di Genova, Vol. XXX (1891), p. 901.

along the outer margin; the tarsi (except the testaceous basal half of the claw-joint) pitchy.

Head strongly and rather densely punctured; on the narrowed front-portion the punctures are much finer.

Prothorax subtrapezoidal, the sides nearly straight, faintly constricted a little before the base, and crenulate; the anterior angles very broadly rounded, not at all prominent, the posterior ones acute and divergent; the front-margin straight, the base bisinuate, the median lobe narrowly rounded. The disk is somewhat irregularly covered with very large and deep punctures which are closer set towards the sides; in front of the scutellum an impunctate streak is present. The impunctate scutellum is small and strongly transverse.

Elytra very elongate, slightly narrowing towards the end and here separately rounded in an angular way. Each elytron with ten regular striae of punctures which become larger towards the sides; the 3rd and 9th interstices are strongly costate on the apical portion and join the margin.

Under surface of the head with a few distinct punctures on the middle, strongly punctured on the sides, the throat impunctate; the metallic lateral portions of the prosternum deeply but not very densely punctured; the legs apparently impunctate, the metallic coloured portions, however, with a few distinct punctures; the anterior tibiae straight; the tarsi very slender and elongate.

A single female specimen which is in the possession of Mr. René Oberthür.

Leyden Museum, October 1891.

NOTE XLI.

LIST OF REPTILES BROUGHT FROM SIAM
BY Mr. R. C. KEUN

DRAWN UP BY

Dr. Th. W. van LIDTH de JEUDE.

In the beginning of this year Mr. R. C. Keun, formerly Consul of the Netherlands at the empire of Siam, presented the Leyden Museum with a small collection of Reptiles from the neighbourhood of Bangkok. As Mr. Keun, because of ill-health, resigned his honourable employment, he will not be in a position again to add other Siamese specimens to those we have already received, and it is therefore that I give a list of this valuable collection, the more valuable as the Reptiles of the Indian continent are very poorly represented in our Museum, those of Mr. Day's precious collection¹⁾ being almost our sole representatives of the Indian herpetological fauna.

In making up this list I follow the nomenclature and the arrangement adopted by Mr. G. A. Boulenger in his »Reptilia and Batrachia» in »the Fauna of British India» except in his adoption of the genus *Trimeresurus* Lacépède. The sole characteristic that, according to Lacépède, separates the snakes of the genus *Trimeresurus* from all other Opisthoglypha and Proteroglypha is the peculiar arrangement of the subcaudals. This characteristic is not

1) Described by Dr. A. A. W. Hubrecht in »Notes from Leyden Museum», IV, p. 138.

to be found in one of the species belonging to the genus *Trimeresurus* according to Mr. Boulenger. Moreover the species first described by Lacépède, viz. *Trimeresurus leptcephalus* (a snake in my opinion very closely related to *Naja porphyriaca* Shaw and *Naja australis* Gray, both agreeing in having the peculiar arrangement of the sub-caudals described by Lacépède) can by no means be classed in the genus *Trimeresurus* according to Mr. Boulenger. I think it better to adopt Wagler's genus *Bothrops* and, if it should be found desirable to preserve Lacépède's genus *Trimeresurus*, I would substitute it for Wagler's genus *Pseudechis*.

Mr. Keun's collection consists of 14 specimens belonging to 12 species, viz. 11 species of *Ophidia* and 1 species of *Batrachia apoda*.

Ophidia.

1. *Cylindrophis rufus* Laur.
2. *Hydrophobus davisonii* Blanf.
3. *Simotes cyclurus* Cant.
4. *Zamenis korros* Schleg.
5. *Tropidonotus subminiatus* Schleg.
6. " *piscator* Schneid.
7. *Dryophis mycterizans* Daud.
8. *Chrysopelea ornata* Shaw.
9. *Homalopsis buccata* L.
10. *Hypsirhina enhydria* Schneid.
11. *Bothrops gramineus* Shaw.

Batrachia apoda.

12. *Ichthyophis glutinosus* L.

Leyden Museum, October 1891.

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1) Must be *suturale* (see p. 170).

2) In stead of *scalaris* as is printed by mistake

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Dr. J. G. de Man del.

A. J. J. Wendel lith.

P. W. M. Trap impri.

1. *Actaeodes pubescens* *M. E.* 2. *Etisoides frontalis* *Dana.*
3. *Epixanthus subcorrosus* *de Man.*



Dr. J. G. de Man del.

A. J. J. Wendel lith.

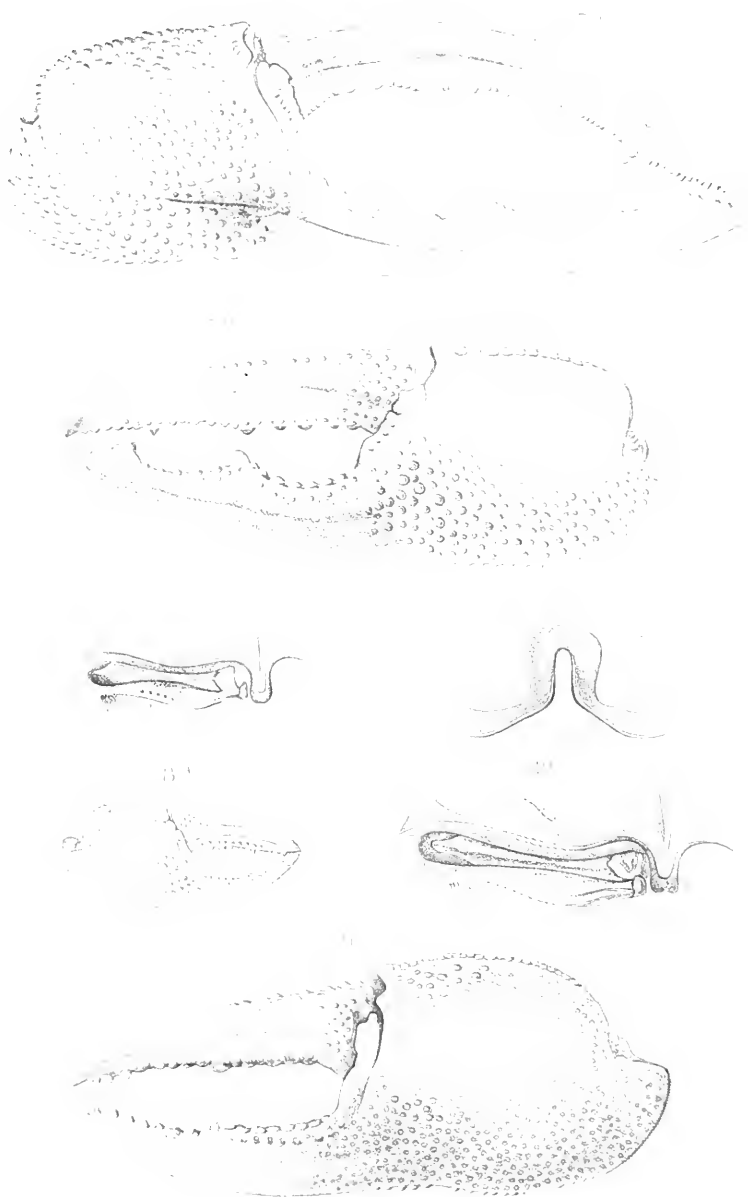
P. W. M. Trap impr.

4. *Epixanthus frontalis* *M. E.*

5. *Gelasimus vocans* *M. E.*

6. *Gelasimus tetragonon* *Herbst.*

5a. *id. var. cultrimana* *Ad. & White.*



Dr. J. G. de Meijdel.

A. J. J. Wendel Bith.

P. W. M. Trap impr.

7. *Gelasinus arcuatus* de Haan.

9. *Gelasinus forcipatus* Ad. & White!

8. „ *coarctatus* M. E. (juv.).

10. „ *acutus* Stimps.



Dr. J. G. de Man del.

A. J. Wendel lith.

P. W. M. Trap impr.

11. *Gelasimus signatus* Hess. 12. *Gelasimus inversus* Hoffm.
 13. *Gelasimus triangularis* M. E., var. *variabilis* de Man.
 14. *Metopograpsus messor* Porsk., var. *gracilipes* de Man.
 15. *Heterograpsus spinosus* M. E.



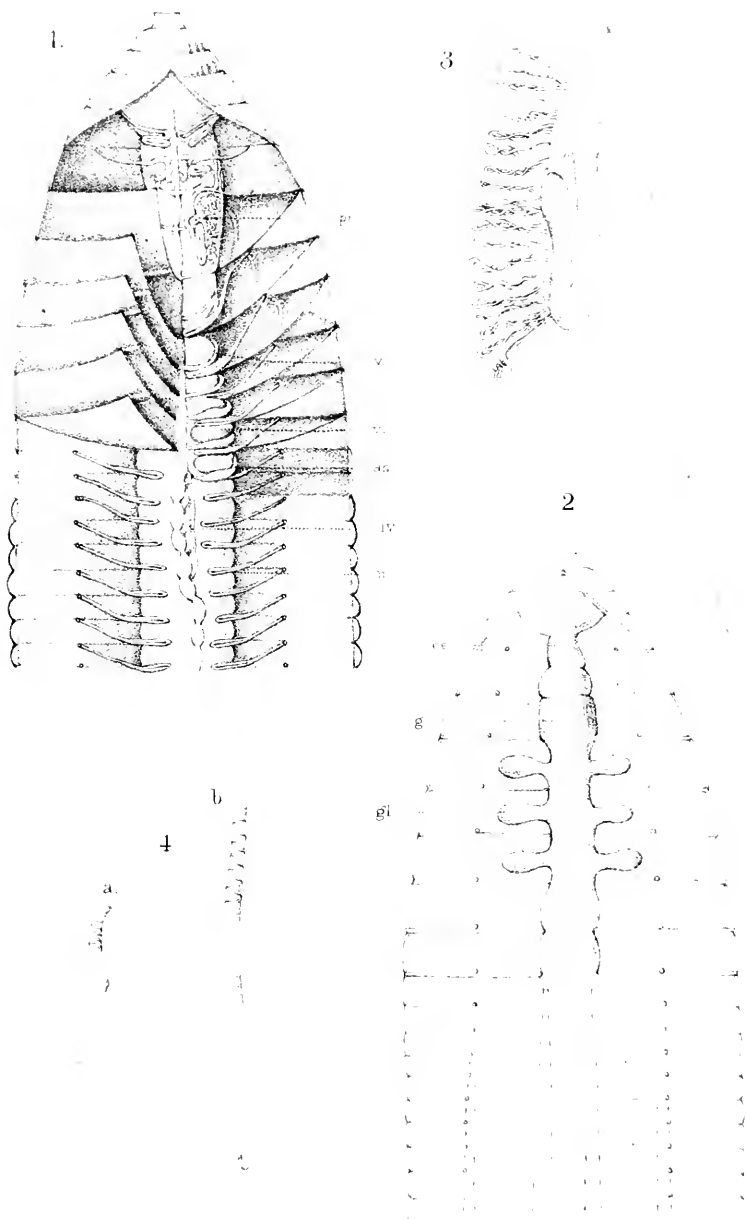
Dr. H. W. de Graaf ad nat. de'.

A. J. J. Wendel lith.

P. W. M. Trap inq.

Eliomys kelleni Reurus.



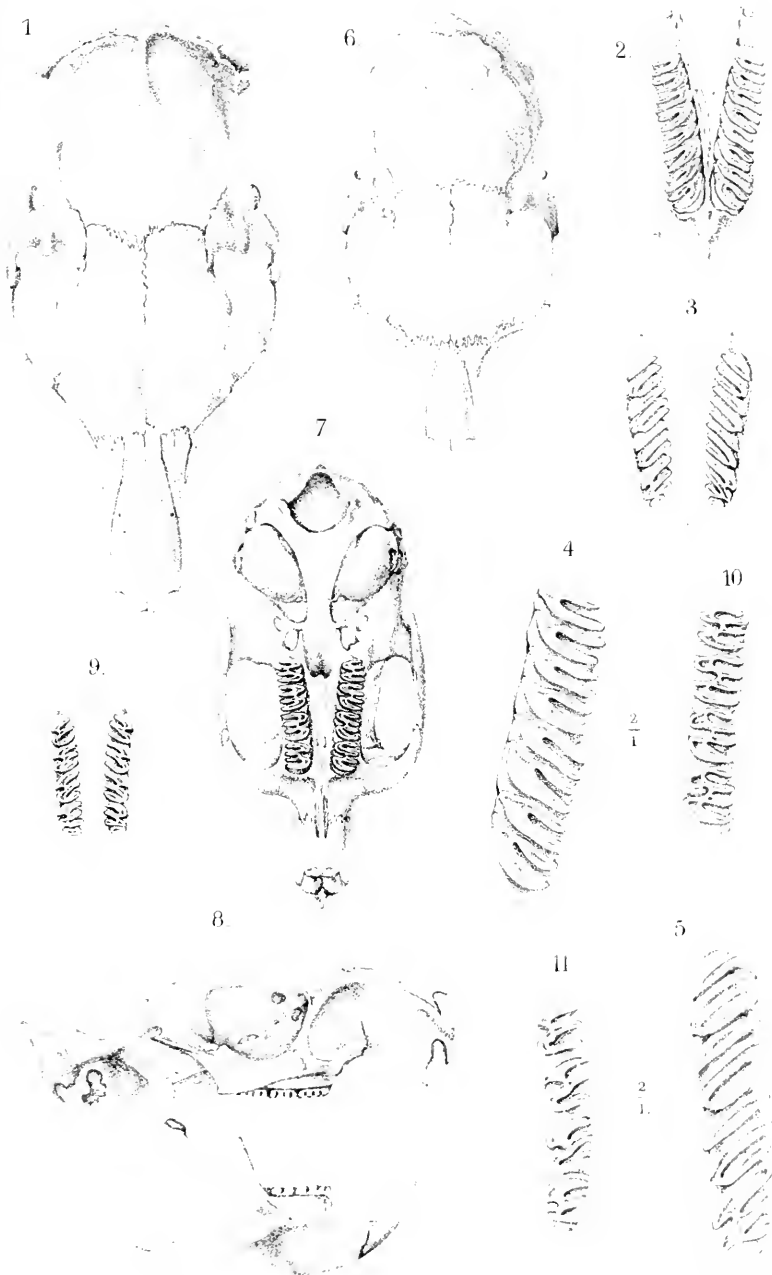


Dr. R. Horst ad nat. del.

A. J. Wendel lith.

P. W. M. Trap impr.

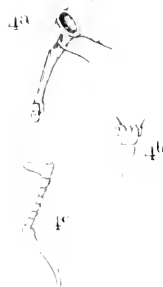
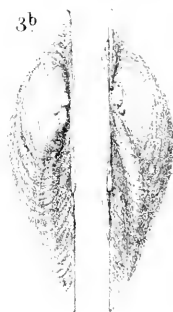
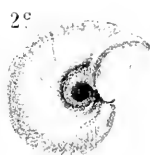
Anteus gigas Perrier.



A. J. J. Wendel del. et lith.

P. W. M. Trap impr.

- 1—5. *Dactylomys daetylinus* E. G. St. Hilair.
 6—11. *Kannabateomys amblyonyx* Natterer.
 2. Upper molar series.
 3 and 9. Lower molar series.
 4 and 10. Right upper molar series, enlarged.
 5 and 11. Right lower molar series, enlarged.



1, 2, 3. A. J. J. Wendel
4, 5. W. F. Jacobs } ad nat. del.

A. J. J. Wendel lith.

P. W. M. Trap impr.

1, 2. *Lanistes conigicus* Boettg. var.
3. *Unio landanensis* Schepm.

4. *Ommatolampus pictus* Roel.
5. *Eugithopus elegans* Roel.



1.



2.



3.



4.
3
2



A.J.J. Wendel ad nat. del. et lith.

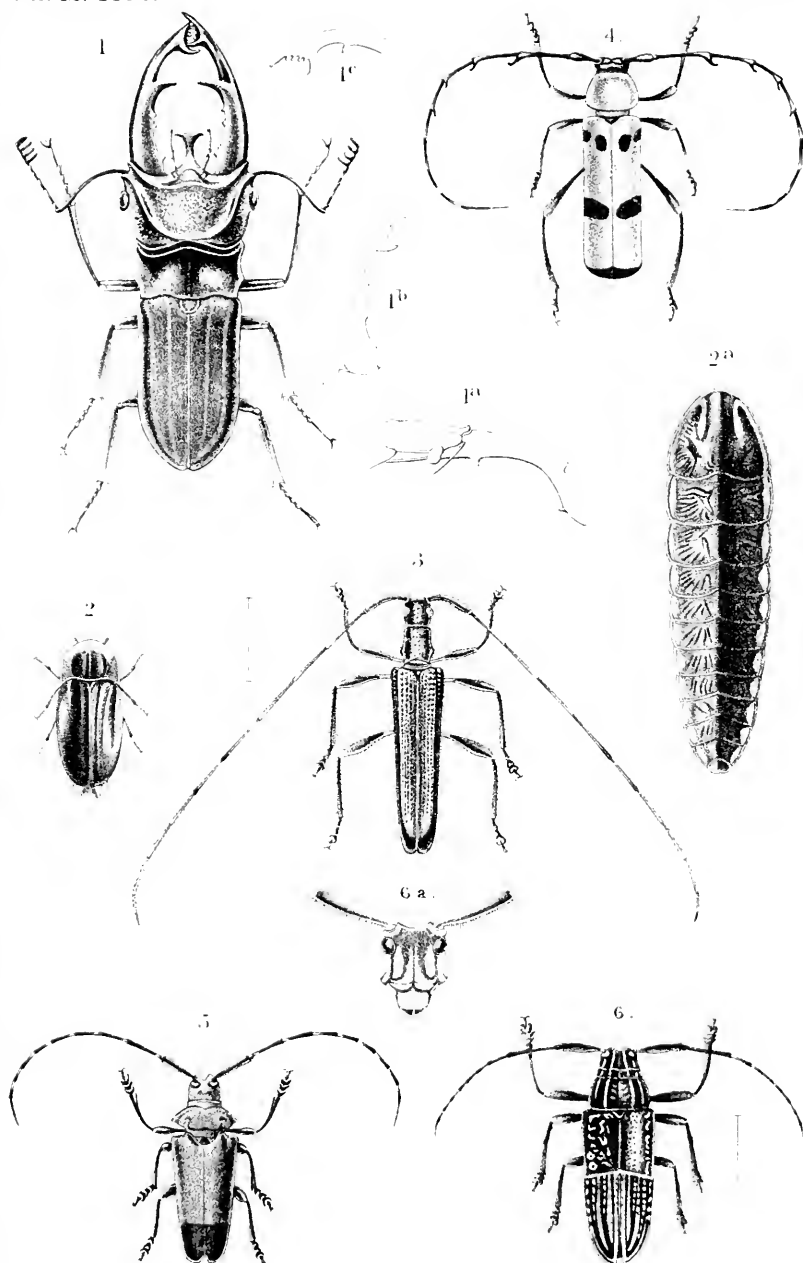
P.W.M. Trap inip.

1. Tritonidea undulata Schepm.

2. Nassa javana Schepm.

3. Fusus Sieboldi Schepm.

4. Oliva Semmelinki Schepm.



W. F. Jacobs ad nat. del.

A. J. J. Wendel lith.

P. W. M. Trap impr.

1. *Cyclommatus Pasteuri* Rits.
2. *Lamprophorus nepalensis* Gray.
3. *Noemia apicicornis* Rits.

4. *Eurybatus inexpectatus* Rits.
5. *Thermonotus Pasteuri* Rits.
6. *Atossa bipartita* Rits.

7259.

NOTES

FROM THE

LEYDEN MUSEUM

EDITED

BY

Dr. F. A. JENTINK,

Director of the Museum.

VOL. XIII.

Nº. 1. January 1891.

LEYDEN

E. J. BRILL.

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E. J. BRILL.

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N.B. Plate 8 will be published in the July-number.



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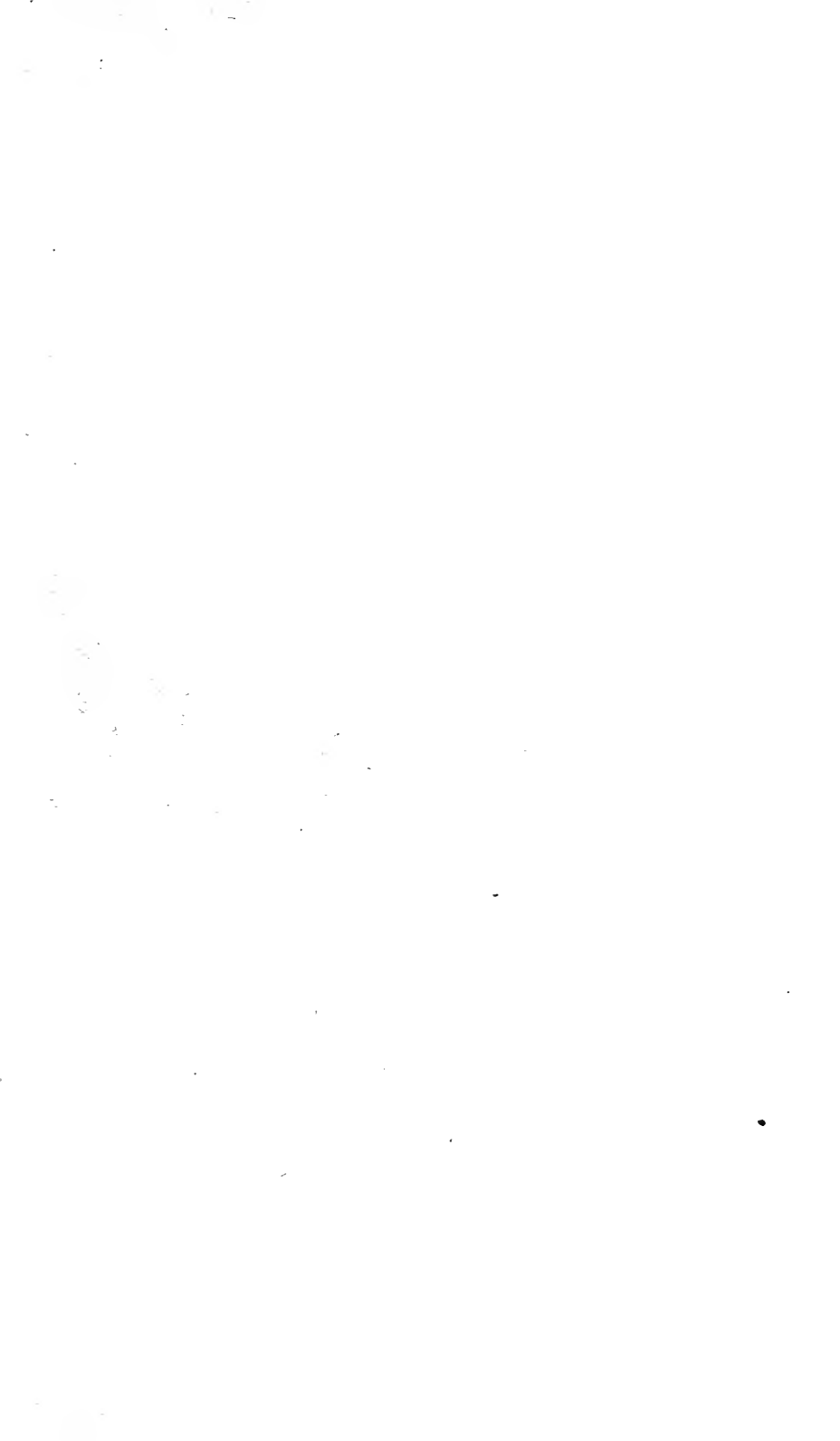
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